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GLEANINGS

IN BEE CULTURE

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GLEANINGS IN THE BEE CULTURE A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. ROOT CO. MEDINA, OHIO. \$1.00 PER YEAR

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J. A. GREEN says, page 526, that the nearer sections "approach a pound in average weight the greater will be the variation in individual weights." That's new; I wonder if it's true. [Mr. Green is not far from the truth.—ED.]

"HAVE YOU EVER seen laying workers in the act of laying?" page 548. I never saw but one at the business, and that was laying in a worker-cell, and its wings were pushed up about its head in a very uncomfortable manner. I suspect that's the reason why laying workers show such a decided preference for drone and queen cells.

D. R. WAGGONER, page 547, nails two short strips on the upper side to direct the bees to the Porter escape. The editor amends by having four strips, one from each corner. Let me amend the amendment: Let the four strips come from the middle of the sides and ends, instead of from the corners. Less wood, and less distance for the bees to travel on the strip. But I suspect the Waggoner plan is just as good as either of the amendments, and simpler.

LATELY I met a man who had had honey from me, and he seemed to think that the one honey-leaflet I put in each shipping-case was not enough. I suspect he was right. [Right here is a good suggestion. A large number of bee-keepers have quite a quantity of honey-leaflets left. It is not a bad idea to put half a dozen copies in each shipping-case of honey. This leaflet tells the truth about honey, and denies the canard about manufactured comb honey.—ED.]

THE WORST TIME in the whole year to let bees run short of stores is, perhaps, at the time of the usual beginning of the honey

harvest. It may mean the cessation of brood-rearing; and not only that, but the destruction of all unsealed brood. Don't trust entirely to the fact that there are plenty of flowers. Sometimes there is abundance of bloom but no nectar, and the first intimation that any thing is wrong is seeing the white skins of larvæ thrown out at the entrance.

J. A. GREEN says, page 525, "My experience is that a shaken swarm to which a frame of brood has been given is much more apt to swarm out than one hived in an empty brood-chamber." I wish he would tell us whether they swarm out the first day or after several days. Mr. Stachelhausen is authority on shaken swarms, and I believe he gives a frame of brood because it holds the swarm; but then he takes it away in two or three days, because, if left, the bees start queen-cells on it.

THE SEASON was unusually early, but there has been so much cool and wet weather lately that the bees have been kept in their hives much of the time. It doesn't seem to make much difference as to brood-rearing, the colonies seeming to increase in strength right along, but it makes it necessary to keep watch for fear the bees run out of stores. [While the season has in one way been unfavorable for bees it has not cut down brood-rearing to any great extent, if at all, except in the case of weak colonies. The great amount of rain has put the ground in fine condition for a heavy blooming of clover everywhere. Even if we should have a drouth from now on, it probably could not affect very much the clover crop in this locality, for the ground is thoroughly soaked—a condition which I presume is largely true throughout this clover belt.—ED.]

A POUND SECTION is one of such measurement that the bees will always put into it just enough honey to make it weigh exactly a pound. There is no such measurement; so J. A. Green is exactly right when he says, page 526, "The pound-section idea is a delusion and a snare." [Let me see. If my recollection serves me right, there used to

be a chap up in Northern Illinois who argued strenuously for sections holding a full pound because the public expected a section to weigh that much. Now, if a pound section practically does not exist, and never did, what is the wrong in selling sections by the piece? If we try to give a pound size we can not supply it, if your statement is correct. Just tell that man why he has been following a will-o'-the-wisp. Perhaps you know him.—ED.]

“LOOK OUT for number one.” That’s all well enough; but I tell you the man who wants all the happiness to be got out of this life needs to do a lot of looking out for others. The chauffeur who recklessly rides over people and frightens teams brings into disrepute the army of good people who ride in automobiles. The few evil-minded slugs who are killing people in the Chicago strike are bringing into disrepute the whole scheme of organized labor. The man who puts on the market unripe extracted honey is doing a wrong to every honest man who produces honey. [Just so. I am not sure but we ought to keep harping on this subject during the entire marketing season. The trouble is, the chaps who unload their bad stuff are just the ones who do not read the bee-papers. It would, perhaps, be well for bee-keepers to buy up some of these odd lots in order to prevent their getting on the market at all, either to depress prices, or, worse still, disgust the whole trade with any kind of honey.—ED.]

EXPERIMENTS reported in *L'Apiculteur* showed that a swarm of 20,000 bees builds about 1000 grams of comb in the first four days. Estimating three-fourths of the bees at work secreting, that makes each bee secrete .0000376 of a pound of wax in a day. At that rate it would take a bee 26,595 days to secrete a pound, or 26,595 bees to secrete a pound in one day. [These are interesting figures; but another set of experiments might show quite a wide variation from these, owing to different conditions. Different experimenters have arrived at widely different results as to the number of pounds of honey it requires to make a pound of wax, the highest figures being 20 lbs., and the lowest between 5 and 6. But for all that, the general average of experiments of late has been between 6 and 7 lbs. It would be interesting to know how near the figures you furnish are to the general average. Perhaps the new apicultural department at Washington, with its fine corps of workers, will be able to eliminate many of our guess approximate figures, and substitute therefor those that are reasonably accurate.—ED.]

THE SUGGESTION, page 547, to close out in the fall by having the super only partly filled with sections, is a good one for those who have the time for it. But if any are going to try it, they needn't go to the trouble of having dummies to fill the empty space. I know, for I've had hundreds of sections finished out without any such dummies. A row of six sections, or two rows of six sections

each, with little boards to cover the unused portion of the bottom of the super—that was all. One might think that the bees, having free access to the empty part of the super, would cluster and build there, but they never did. But, mind you, that's toward the end. You are right, doctor. I now recall that I saw in your yard little pieces of board that covered up the space not used in the super, and I have seen the same thing in a good many yards since. It is not necessary, at the close of the season, to have a dummy to shut out the bees from every cubic inch of unoccupied space.—ED.]

FORMALIN was reported an utter failure in disinfecting foul-broody combs, at the Ontario convention, and Prof. Harrison said it had been learned that, for success, there was needed a low temperature and a moist atmosphere. He advised spraying or sprinkling the combs, or dipping them in water, and then, after the gas was generated, they should be left in the tight box 12 hours.—*Canadian Bee Journal*. [I take it that formalin was not a failure when conditions were favorable—that is, when there was a moist atmosphere and a low temperature—just how low a temperature is not stated. As a general thing, the reports from subscribers who tested the drug were unfavorable. Until our scientific men can discover a process by which it can be administered without a chance of failure the average bee-keeper had better let it alone. During the early part of last year we advised many of our subscribers to disinfect hives and suspected combs with formalin, but in no case to depend on it in case of foul brood when known to be actually present. So far the reports regarding the McEvoy treatment have been uniformly favorable—that is, shaking the bees on frames of foundation, or starters, rather, and then giving them a second shaking after the first foundation is partly drawn out, putting the bees on other frames of foundation.—ED.]

THE TENDENCY is to get away from simplicity. Each bee-keeper, especially if a beginner, is likely to think of some attachment to his hive by which a certain point is to be gained. He submits it to friends—perhaps to those with less experience than himself—and they strengthen his belief that he has made a great step in advance. Then he sends it to a bee-editor. The bee-editor says it has good points; but he doesn't always have the heart to add, “But the cost and disadvantages overbalance the advantages.” And then for the rest of his natural life that bee-keeper wonders why in the world the bee-keeping fraternity are so blind that they do not all adopt his improvement. In the majority of cases, when an improvement is sent to the editor of GLEANINGS, his easiest and most truthful answer would be, “It isn't worth while.” I give him great credit for coming as near to it as he does. [Thank you. When an idea has absolutely no merit whatever, in my opinion, I do use rather plain and direct lan-

guage, but writing a *private* letter, telling the would-be inventor that he had better waste no time on that idea, adding either that it is old or why it is impracticable. It would be cruel to tell him so publicly. Where an invention, on the other hand, has some merit, or whenever one without value is being continually invented by every new enthusiast who imagines he has a fortune in it, I bring it before our readers. If it belongs to the first class I say so; if not, I let our correspondent down as easily as possible, yet in language plain enough so that the average bee-keeper will not be wasting time on the same thing. It almost makes the heart of a bee-editor ache to see the number of ideas that are being submitted almost weekly on bee-feeders. Applications for patents for feeders are going into the Patent Office one after another. I try to tell all our feeder friends that the very best bee-feeder in the world, if covered by a patent, would not net him in royalties enough, perhaps, in five years to cover the cost of the patent. The reason is, every one can make his own feeder at practically no expense, and almost as good as the best, with a tin pan and a piece of cheese-cloth. He can even make an entrance feeder out of a Mason jar and a collar-box. He can copy any of the feeders in the catalogs, making his own at comparatively small expense. On the other hand, a bee-smoker is an indispensable article that can not be made with the materials around home, and any slight real improvement on it may be worth patenting.—Ed.]

year tended greatly to depopulate the hives. Hundreds of colonies have died of starvation. Other hundreds are certainly very weak. Indeed, unless stimulative feeding has been practiced (and this is not at all general), nearly all colonies are weak. Does this not argue, then, a profusion of nectar that bees are gathering quite largely of this orange-blossom honey? We should be sure that this was in profusion from the very intensity of the scent, which fills the whole atmosphere at this season of the year (May 1). In examining orange-blossoms I have seen the nectar in such quantities that I was reminded of the linden bloom in my old native State of Michigan. I believe that this orange-blossom honey can not fail to give us a reputation, so much of it is being produced at the present time.

YELLOW-JACKETS.

Miss C. asks what relation the wasps are to bees, and whether there are any points of resemblance between them. The yellow-jackets are well named, for nearly all of them are brightly striped with yellow. They are very compact, trim insects, and always have very small tapering waists. I have never heard that they practice tight lacing, but appearances would suggest as much. The true yellow-jackets belong to the family *Vespidæ*, and are known as the paper-making wasps. As they construct nests often of large size, this name is very appropriate. This paper evidently comes from wood pulp, and so insects invented paper from such material long before man did. The bright, trim, shining appearance of most of these yellow-jackets makes them very attractive, and, except for the keenness of their sting, they would certainly be greatly admired. Indeed, as with our bees, this sting is much more dreaded than need be. Like bees, if well treated these vespids will rarely sting. One year I had a great big nest close beside my front steps. I never disturbed the wasps, and they never attacked me. I often sat down close beside them and watched their interesting maneuvers at close range. I often wondered if they had not learned me. I think this was not true, as I often induced my company to observe as I had done, and they always came away unharmed. I think my kind treatment gave the wasps confidence. As all know, the cells of their nests are much like the same in the honey-comb in form and size. The comb, however, if we may call it comb, is horizontal instead of vertical, and so the cells are vertical, not horizontal. To answer Miss C.'s question, there is much in the natural history of these wasps to remind us of bees. We have here the three forms—queen, males, and workers, and the males are agamic as are drone bees. They mate on the wing, probably but once, and the workers continue to increase in number during the season. I think, too, none but the queens live over the winter in many sections of the country. Like bees they are social. The food of



ORANGE HONEY.

I predicted in one of my notes of a recent date that the coming season would be exceptional in the amount of honey produced in Southern California. This prediction is already being realized. I have heard several accounts of prodigious yields from orange-blossoms. It is true of orange-blossom honey, as of fruit honey in the East, that we usually get very little. This is to be regretted; for, like fruit honey, orange honey has superior excellence. We are not surprised at this, because the flavor would be indicated somewhat by the odor; and if there is anything sweeter than the perfume from an orange-grove it has not yet been found. I think the reason we do not get more honey from such sources is simply that the colonies of bees in the apiary are not very populous at the early season of fruit-bloom. That is certainly true at this season in California. The very fact of no honey-gathering last

these wasps, however, is quite different from that of bees. True, they gather nectar, and frequently repair to the brookside where they may slake their thirst; but the proteid part of their food is not pollen, or bee-bread, but consists of insects. In sooth, these wasps are great friends. They are predaceous, and often destroy great numbers of our most harmful insects. I have seen the larvæ of the currant saw-fly destroyed in great numbers by yellow-jackets in Michigan. I have also noticed our California yellow-jackets very active in destroying caterpillars of the army-worm moth, *Peridroma saucia*.

I think the word *hornet* is the term often applied to these vespids, or paper-making wasps. Indeed, one large species, *Vespa maculata*, is very common in Ohio, Michigan, and other eastern States. As a boy I knew this as the white-faced hornet. It has a powerful sting, but is not likely to use it unless provoked. These wasps help us to rid the house of flies.

In this connection it may be said that nearly all insects of the great order *Hymenoptera* (the order of the honey-bee) are our good friends. As we know, bees do great good in pollinating flowers. Even the wild bees, many of them solitary, not social, aid not a little in this good work. All the wasps are good friends, as just explained of the vespids. There are four great families of hymenopterons that are almost wholly parasitic. Of these are the chalcid and ichneumon flies. These are so tremendously our friends that I really think agriculture would be almost impossible without their valuable aid. I think the ants may be said to be our friends, though they are often annoying, and in rare cases do no little harm. Gall-flies, while they produce the oak-apples, really as a general thing do little harm, while they give us an important element in indelible ink. Of course, the bees are the greatest benefactors, as they hand over to us the delicious honey and the valuable wax, while their work as pollinators is great beyond compare. This leaves the saw-flies as the only family which may really be said to be grievous pests. The joint-worms in wheat, and the xylocopa bees, are black sheep of their families.

THE BLASTOPHAGA.

I wonder if it is generally known what a blessing we have in a little chalcid fly which is brought all the way from Persia. It is a very minute insect, and is often referred to as the fig-wasp. As we all know, the Smyrna fig has rare excellence. While we have just the right climate and soil for fig production, we have until lately utterly failed in producing the Smyrna figs. It was found that in Smyrna these figs could not be produced without the little fly, and that these flies bred only in another kind of fig, the Capri fig. At the proper time, branches of the Capri fig were hung in the Smyrna trees. Through the kindly office of our

splendid Department of Agriculture these blastophaga were introduced into the fig-orchards of our State, and to-day we are producing Smyrna figs which are unexcelled in amount of production and excellence of quality. Here again, then, we have an example where the importation of a tiny insect has led to great economic results.

GOLDEN ANNIVERSARY.

I can not say golden wedding, but it is worthy of remark that this is the fiftieth year since alfalfa was introduced into California. As we all know, alfalfa is not only a remarkable honey-plant, but as a forage-plant it is absolutely incomparable. Who knows of any other plant that produces six or seven crops, possibly ten, a year, and they, too, not light but bountiful? I think it is possible, under the very best of circumstances, to get well nigh twenty tons per acre of alfalfa in a single season. Thus we have, in this, more than the equal of red clover, and for the bee-keeper it is far superior. Like all the legumes, alfalfa enriches the ground, snatches nitrogen from the air, and combines it, through the aid of bacteria, that it may be utilized for the host plant. It is thus a most valuable fertilizer. By aid of the government-bred bacteria this crop is now being grown in all the Eastern States. While it can not be grown east as in California, yet it bids fair to more than rival red clover, even in the East.



A few drops of gasoline will remove polish from the hands. Kerosene is as good, cutting all waxy substances instantly.

On page 355 I made mention of the Baldensperger family, the father of whom went to Palestine many years ago and established bee-keeping there on a scientific basis, although his chief aim was mission work, which he carried on for 44 years. Some 20 years ago one of this family, Ph. J., enlivened these pages very often with articles from his pen. So far as I can remember, the silence has been broken but once, and that to announce the drowning of a brother in the Mediterranean, at Joppa; and now a postal comes announcing the death of another brother, C. H., in Jerusalem, Jan. 27. He was buried on Mount Zion, the ancient city of David, probably the most celebrated piece of ground between the two poles of the earth. Mr. Baldensperger says he has one more brother in Jerusalem, named Emile. Ph. J. himself now lives in Nice,

France. Few people have succeeded in doing more for the improvement of an established branch of agriculture than this Alsatian family. It is not too much to hope to hear from Mr. B. again.

All are familiar with the methods employed in evaporating the water from the juice of sugar-cane in vacuum. In this way the water is forced to leave the solid parts in a remarkably short space of time. Some time ago a foreign journal, not now within my reach, suggested this principle for thickening green honey; and my impression is it was claimed the experiment had been tried with success in Europe. Probably the drawback will be the cost of machinery compared with the value of the product; and perhaps too much heat would be necessary. Sure it is, however, that more attention must be paid to this matter of ripening if extracted honey is to take the place in the markets that it should.

The *Literary Digest*, in making a review of a book of poetry written by Mad. Cawein, speaks of him as a poet of nature, and gives the following, which is the first stanza of one of his poems:

Bee-bitten in the orchard hung
The peach, or, fallen in the weeds,
Lay rotting where still sucked and sung
The wild bee, boring to the seeds
That to the pulpy honey clung.

Such stuff will account for the many false ideas entertained by the public concerning the bee. Just think of a bee biting into a peach when it can do nothing of the kind! But the climax of the joke is reached when we are called to watch a bee making its way by boring into a rotting peach lying on the ground. The whole thing is as untrue to fact, and hence to nature, as any thing can possibly be. It is still true of many people, even in this advanced day, that they have eyes, but see not.

The *Progressive Bee-keeper* has a very sensible editorial in reference to Gov. Folk's veto of the foul-brood bill in Missouri. From it I make the following extract.

The Governor says in his message that "Any one intelligent enough to conduct a bee industry is certainly better qualified to attend to them and manage his own business than any State Inspector could possibly be."

If Governor Folk's nearest neighbor had smallpox in the house, and some morning when he sat down to breakfast the said neighbor should step in and say, "Hello, Governor! Can I borrow your backsaw a little while this morning?" I wonder if he could see the wisdom of a quarantine law. However, this only goes to show that a man may be wise enough to be Governor of a great State like Missouri, and yet be densely ignorant in some things. By the same kind of reasoning we might say any one who is intelligent enough to have a large family is certainly better qualified to administer to them in case of sickness than is a first-class physician. There would be fully as much horse sense in this kind of assertion as there is in Governor Folk's excuse for not signing the bill.

Gov. Folk's reasoning would be just as applicable if he were called on to sign a law to stamp out rinderpest, anthrax, tuberculosis, and other contagious diseases peculiar

to cattle and swine. Experience shows that many men will not move, even in their own interests, unless prodded by the law. It's a little strange, too, that Gov. Folk was not influenced by the action of other States that have strict foul-brood laws.



REPORTS WANTED OF THE NON-SWARMING METHODS.

GLEANINGS will be very glad to get reports concerning any of the late non-swarming methods that have been advocated in these columns, especially the Sibbald and modified Sibbald plan, and the Alexander method of keeping down increase, and then producing large quantities of honey. With our nearly 20,000 subscribers we are able to test out any plan that has merit, and render a report in a few weeks.

SECTION V. BULK HONEY; AN IMPORTANT QUESTION.

A GOOD article by Mr. Weaver, in this issue, will furnish food for thought. The question is, in view of stagnation in prices, "Are bee-keepers making a mistake in running so much of their comb honey in packages as small as one pound?" Would it be better if some of it were sold in larger packages to the local trade, say in five or ten pound lots? Or, to put it in another way, would not the consumer buy fifty cents' or a dollar's worth of honey the same as he does sugar, as quick as he would a paltry twenty cents' worth, *providing he understood* he was buying the larger amount at *wholesale*, and enough to last his family a good long time? The growing scarcity of suitable section lumber may force all comb-honey producers to adopt some other plan of marketing in the future. If so, we may as well begin to face the problem *now*.

TOWNSEND METHOD OF PRODUCING COMB HONEY; ITS POSSIBILITIES.

THE reader's attention is particularly drawn to the article by E. D. Townsend, p. 594, on the production of comb and extracted honey from the *same super*. The writer outlines a plan whereby swarming may be controlled, bait sections dispensed with, and unfinished sections eliminated entirely. At the end of the season the bee-keeper will have a lot of finished sections, and, instead, what would otherwise have been unfinished sections, a lot of fine shallow extracting-combs. A feature that will commend itself particularly is the one whereby swarming, so easily controlled in the production of extracted honey, can be almost as readily

controlled in the production of comb honey, *a la* Townsend. The one great drawback to the production of comb honey has been swarming. Well, now, if we should combine the Sibbald or any other good non-swarming plan with the Townsend, of producing *both* comb and extracted in the *same* super—well, it seems to me we shall almost reach the millennium of comb-honey production, providing—*providing*—we can get a fair price for our honey. Happily, a well-concerted effort is being made at this problem.

Already the year 1905 has been noticeable for bringing to light some excellent non-swarming plans as given in our late issues, and now we have before us a comb-honey plan that looks as if it might have very much merit.

Now, let us not rise up and decry the plan by calling it old and worthless, but let us give it a trial in this year of our Lord 1905, in connection with all other late ideas that have been promulgated.

HIGH-PRESSURE ENTHUSIASM NOT AN UNMIXED EVIL.

THE criticism may possibly be made that the editor of GLEANINGS is liable to be too enthusiastic over any new fad. Editorial utterances regarding some new or semi-new practices advocated in this issue might give ground for this; but if the reader will pardon the egotism which prompts the statement, he will recall that many of those so-called fads over which the writer of these lines has become enthused are not now fads or untried theories, but practical, working realities, bringing a large measure of success. At one time your humble servant was very enthusiastic over fixed spacing for frames, even when most of the bee-world considered them a nuisance. The principle is getting to be now all but universal in modern bee-keeping, although the editor was severely scored at the time for helping to push the "heresy." Fences and plain sections, thick top-bars, lock-corning in hives, wide entrances, copious ventilation in bee-cellars, shaken swarms, etc., are not now untried theories but working realities.

Coming up to the present time I verily believe that some of the late non-swarming methods that have been advocated in these columns, and the Townsend method of controlling swarming, as enunciated in this issue, are two more fads, if you please, that will mean many dollars to the bee-keeping craft.

Now, having said this much I do not mean to imply that my enthusiasm has *never* been misplaced—far from it; but sometimes, in order to make a thing *go* we must take on a *full head of steam*. If that full head will not make it go, there is something wrong with the thing itself. But if that thing is all right, the high pressure will push it forward as perhaps nothing else will, even if (to carry out the figure) the boiler is a poor one and does sometimes spring a leak and dampen some other fellow's equally merito-

rious ardor, for there is a host of other people who know a good thing when they see it, and there are plenty of chaps like the editor who are so dumb as to fail to grasp it.

GLEANINGS PRIZE PICTURES, AGAIN; BEE-TREES, AND COMB-SPACING IN NATURE.

BY some misconnection the third-prize pictures reached us before the second. On p. 602, '3, in this issue, we present two photos. In the opinion of many of our subscribers these might rank ahead of the first-prize picture given in our previous issue. And that leads me to say that they were awarded the prizes by a special committee in The A. I. Root Co.'s general office. The firm, much less the editor of this journal, had no hand in the matter.

The bee-tree is very remarkable, and a fine specimen. The figure of the man, Mr. George A. Fenton, gives an exact idea of the size of the tree. By the way, if I am not much mistaken this is a very good likeness of Mr. Fenton, for the pose seems to be natural and easy. There is no suggestion that he is close on to a bee-tree; that the same has been cut open, and that there might be angry bees flying about while the artist was pressing the button. As a matter of fact the bees of a bee-tree will offer no attack after several vigorous blows of an ax have been delivered against their domicile. They soon become demoralized, and will not sting unless accidentally pinched. Mr. Fenton is undoubtedly cognizant of this fact.

As he states in his letter, which is herewith given, he has sawn into the tree in five places, and each time discovers the combs are much longer than he suspected. The reader is left to infer that they still extend down into the trunk of the tree.

Mr. Root:—I send you a photo of a bee-tree. I cut this tree last November, and got about 25 lbs. of honey. The tree is standing on the point of a high hill. You will notice that I sawed into it in five places, and chipped the pieces out. You also will notice the bees are all at the top. The tree is about twenty rods from where I live, in plain sight of the house. I gave the honey to the man owning the land, as all I wanted was the photo. I was to have some help but the bees scared them away. I set the camera up, and my wife snapped it. Your humble servant is seen standing by the tree.

I am a photographer myself. I think it would be fairer to some of us living in the Northern States if you would extend the time to July 1st or 15th.

Mazeppa, Minn., April 17.

GEO. A. FENTON.

Some years ago there was quite an extended discussion as to how far apart bees space their combs in nature. Some said 1½ inches; others argued just as strenuously for 1¾ as being the right average. As a matter of fact, combs in bee-trees, straw skeps, box hives, etc., are laid out by the bees all the way from 1¼ from center to center, up to 2 and even 2½ inches. The wide spacing usually applies to the store or drone comb. In the bee-tree shown on page 602, some of the combs, I should judge, are spaced 3 inches. Evidently the bees had not been very much crowded; but when the time should have come when they would have needed more storeroom every available space not

narrower than 1½ inches would have been filled out with combs. The appearance of this tree would indicate that the bees had been located there only about one year. Some of the lower combs appear to be quite white, as if little or no brood had been reared in them.

The only thing lacking about this photo is the fact that the hollow is located so close to the ground as to remove the element of adventure and excitement. There was no climbing—nothing about it to suggest the acrobatic and daring in swinging aloft perhaps 50 or 75 feet from the ground, and wielding an ax until the great limb in which are located the bees begins to give way, creaks, and tears itself loose, coming down with a crash, smash, bang. Perhaps we shall see this enacted in some of the other photos. I do not know what is coming yet, for the "committee" have been given sole charge of the pictures.

A LAWN APIARY.

The other third-prize photo of a bee-yard is unlike the one given in our previous issue in that it is more suggestive of a beautiful lawn or park, of rows of hives laid out with mathematical precision—in short, nature modified by the handiwork of man. Our friend Adam A. Clark, its proprietor, runs almost exclusively for comb honey, and that in plain sections, if we may judge from the correspondence that has passed back and forth from time to time. The small amount of extracted honey he does obtain is secured in connection with his comb. Sometimes in baiting the bees out of the lower story he uses a shallow extracting-super. When he gets the bees once started above he puts on a comb-honey super, and uses the bait extracting-super for some other hive.

The picture was taken, evidently, right in the height of the season. The stacked-up supers, two and three high, and in some cases three and four high, betoken a degree of prosperity that ought to make the owner proud. The whole picture is very attractive of its kind, and, as I have already said, some judges might have given this the first place.

The photo was evidently a "time" view. And right here I wish to suggest to aspirants in our prize contest that a camera mounted on a tripod, with the lens stopped down to the smallest opening, and a time exposure, will, as a rule, give far better results. How do I know this is a time exposure? Just look at the tree on the left—that is, I mean the foliage in the upper left-hand corner. It looks as if a whirlwind was making a regular hullabaloo at the moment of exposure.

HOFFMAN VS. UNSPACED FRAMES.

ON account of the heavy demand for bees this year we have been buying up every thing we could find, from farmers in this county who had bees to sell, and then introduce our red-clover stock. It was a significant fact that we were compelled to melt

or burn up a large percentage of the combs in the loose or unspaced frames, because of the fearful and irregular spacing, while those in the Hoffman frames were as perfect, almost, as any thing we had in our own yards, showing very clearly that the average farmer in Medina Co., at least, needs a frame that is self-spacing. In every one of the hives with loose unspaced frames we had a mess of it. All we could do was to cut out or tear the combs apart, and then shake and brush about half or two-thirds of the bees on to frames of foundation in another hive. Of course, it is needless to say these new frames were self-spacing. In this case at least they were closed-end Danzenbaker, as we needed colonies on these frames for orders. The combs of brood in the old frames were so very crooked that we did not deem it practicable to attempt to cut them out and put them into good frames; so we are going to let the brood hatch out without a laying queen, shake on to spaced frames; then melt up the combs.

THE VALUE OF LONG-SLEEVED FINGERLESS GLOVES IN PRACTICAL WORK AMONG THE BEES; THE DUTCHMAN'S REVOLVER.

I FIND there is a great comfort if not convenience in using a long sleeve or gauntlet with a rubber cord gathering at each end, one to close over the palm of the hand, leaving the fingers exposed, and the other over the elbow. Of course, there must be a thumb-hole to make the sleeve complete. I was quite surprised to see how many of the bees would sting the sleeve up *above* the fingers rather than to attack the exposed members themselves.

I found even long-sleeved gloves with entire fingers, when I was trying to cure a bad case of robbing, spoken of elsewhere, decidedly comfortable. The bees were cross—awfully so—and before putting these on they seemed to take particular delight in darting up my sleeves, and stinging the soft fleshy portions of my wrists and arms.* Now, if there is any place outside of my nose and eyes that I do not want to have stung it is the wrists. There was a pair of these long-sleeved gloves in the yard that I never used, but *now* I quickly drew them on, and—presto! what a delightful change! I pulled the combs out of the old leaky hives, transferred them into good tight ones, receiving only now and then a slight prick from a sting that had barely reached through the fabric. A slight movement of the arm or wrist disengaged the sting, and at the same time the bee was minus that organ.

I must say that, hereafter, I shall consider a good pair of long-sleeved gloves something as the Dutchman did his revolver. He said he did not want it very often; but when he did want it he wanted it "mighty sudden." For persons who are timid or inexperienced, who are greatly affected by stings,

* Not expecting to work the bees I was not provided with my long sleeves. I went to the yard on a tour of inspection to see if there was any thing doing, and lucky I did.

the gloves are a great relief—indeed, I may say almost a necessity; and I believe the average practical bee-keeper who is not afraid of stings would do well to make a practice of using fingerless gloves like those first described. He will be able to do more work with less interruption; and, moreover, I do not believe it is wise for the average honey-producer to get too much of the bee-poison into his system. What earthly reason can there be for getting stings if they can be avoided? The fingerless gloves or gauntlets are almost as useful as a bee-veil.

I got this idea from that practical bee-keeper, W. L. Coggsall, of West Groton, N. Y. A picture of him with these gauntlets on will be found in all the late editions of the A B C of Bee Culture, under head of "Veils." You can make them yourself or you can buy them of your dealer.

A TACK-PULLER THE HANDIEST HIVE-TOOL.

THE other day when Mr. Chalon Fowls, of Oberlin, Ohio, was here to visit us he brought with him an ordinary carpet-tack puller; and as he handed it to me he said, "Here, Ernest, is the best hive-tool ever invented." But this tack-puller, instead of having a round shank between the handle and claw, had a flat one. Mr. Fowls explained that the divided claw was just right for straddling T tins and tin rabbits in cleaning off propolis and likewise for cleaning the V edge on Hoffman frames, and, moreover, that it was the thing to pry those frames apart. The slightly hooked claw gives a tremendous leverage. When the shank or blade of the claw is laid down flat it enables one to scrape off burr-combs as well as propolis.

The tool retails at most hardware stores at 10 cents. I have been testing it in one of our bee-yards, and I must say I am greatly pleased with it. I do not know but it is as good as the best tool ever invented for this particular purpose. Mr. Fowls has a string hitched on his, about a yard long, to be attached to his pants or vest button. If he slips the tool in his pocket the string shows where it is, and, at the same time, prevents the thing from getting away from him.

Mr. Fowls said all the bee-keepers in his locality are now using this tool, and prefer it to any thing else they have yet seen. When you come to remember that tacks are used very commonly in a board for fastening wire cloth, the tack-puller, as a special tool for the purpose, comes in very handy after the bees have been hauled to an outyard.

BUYING BEES IN OLD HIVES WITH GAPING CORNERS.

IN buying up bees, as spoken of elsewhere in this issue, we secured quite an aggregation of old hives that had warped apart so the bees could go through the corners, between the cover and hive, and between the body and bottom-board. In practicing the shake-out plan of forced swarming, we unfortunately shook a little too close, with

the result that the few bees remaining were not able to put up a defense with all the gaping cracks, in addition to the entrances; and before we knew it we had furious robbing at the outyard where these hives were. Fortunately we had on hand a lot of good Dovetailed hives, and immediately went to work transferring the combs into said hives, crammed the entrances up with grass, which would wilt out in time, shutting the robbers in with the bees that were vainly attempting to defend their combs. After the robbers had been shut up with the other bees for a few days they all became part and parcel of the new colony, and the grass in the meantime will have wilted enough to let bees out automatically. Did the robbing stop? Almost immediately after the last combs were put into bee-tight hives.

You may say that our boys ought to have known better; but when one is used to shaking from bee-tight hives it would be very natural for him not to take into consideration the extra set of entrances due to cracks, and warping of the hive-boards.

SOME THINGS TO REMEMBER IN PRACTICING CONTROLLING SWARMING ON THE RETURN-INGBEE PLAN.

WE are already practicing the Sibbald and some of the other non-swarming plans at one or more of our outyards; but we find this: In order to make the principle of catching flying bees work in a new hive on the old stand, said hive must have a "drawing card" in the shape of a card of comb, brood, and bees from the parent hive. What will answer almost as well is the shaking the bees from a couple of combs into or in front of the new hive, because there must be bees in the hive to attract the attention and draw in those from the field. Wherever practicable the new hives should be as much like the old ones, in style and appearance, as may be. Even a newly painted hive, exactly like the old one, has a tendency to create distrust on the part of returning bees.

APPEARANCES indicated in the early part of the season that Southern California would have one of its big crops of honey; but we are informed that the conditions now are somewhat discouraging, and that the probabilities are that the crop will not materialize as was first expected. To a great extent this is true also of Texas. There has been an unusual amount of chilly weather throughout the entire country. It is not too late to get a good crop from white clover in the clover belt, and we are hopeful.

OWING to so much cold or chilly weather, accompanied by heavy rains during the past month, there has been not a little chilled brood, many samples of which have been sent in to know if it were foul brood. We are finding to-day in our own yards patches of considerable size that were left high and dry owing to the contraction of the cluster, allowing even the capped brood to chill and die.



MARKETING HONEY.

An Address Given by R. F. Holtermann, Brantford, Ontario, at the Bee-keepers' Convention Held at Syracuse, N. Y., Jan. 14, 1904.

A good article for sale is more than half the battle in marketing. An article spoiled in production can, with difficulty only, get a market, and which it can never hold.

It is better to know how to get an article in proper shape for market than to know only what to do to bring it before the attention of the buyer. Both, however, are of great importance. Honey must be in the right condition, and then distributed in the right way. To give to the people in each market what they want sounds well to the unthinking man; but to carry this policy out means to stop all so-called world's progress. Better methods are desirable, and any way of marketing which can be shown to be to the advantage of the trade and the consumer should be brought forward, and the public educated to see the advantage.

At present, honey generally is produced in about as unsystematic a way, and with about as poor results, as butter was twenty or more years ago—here a few pounds and there a few pounds, without uniformity in production or handling, and much of it injured; for in its various stages its quality can be affected as much as butter. Too much of it leaves the hive when it is really not yet honey, but when it is still in the stages between nectar and honey. Again, that grand quality in desirable table honey, aroma, which helps to hold and develop our market, is practically lost sight of by our bee-keepers. Their method of handling, and the lack of speaking of it, proves this.

THE IMPORTANCE OF EXTRACTING AND BOTTLING SOON AFTER TAKING FROM THE HIVE; FROTH OF NO CONSEQUENCE.

I have 400 colonies of bees, and out of one county alone last season I took some 30,000 pounds of honey; yet with all our rush we extract; and before the honey has lost the warmth of the hive we strain out any particles of wax and the like, and then immediately store the honey in vessels which can be tightly sealed as soon as filled. If any one asks me about the froth, let me answer, froth on well-ripened honey is only, to honey, what the beaten white is to the white of an egg. They are the same, and produced in principle in the same way.

Next, honey contains formic acid. This is a valuable medicine, and retards and even destroys the growth of unwholesome germs. In storing, this should be considered. Honey can never remain long in contact with tin without this acid acting on the metal. The percentage of formic acid varies. I have had samples of honey analyzed, finding 100 per cent more in some samples than others.

THE DANGER OF INJURING THE FLAVOR OF HONEY BY HEATING, EVEN IN LIQUEFYING.

Inferior goods not only hinder the sale of similar goods, but they injure the demand for a good article. One becomes an opponent of the other; one neutralizes the effect of the other, and of this phase of the market we can say, a house divided against itself can not stand. So far as I know, all (or almost all) of our northern honey has the peculiar characteristic of becoming solid, crystallizing, or, as it is commonly called, granulating. The more delicately flavored honey such as clover, even in expert hands, rarely goes through the process of liquefying without perceptible deterioration in its delicate flavor and aroma. This may be disputed by those of less sensitive palate, yet remains true, and will stand the test. None of us, however, are likely to deny that, when the average retailer with little or no experience in this direction, undertakes to liquefy honey, evil results are almost a foregone conclusion. It may be fairly good, but too often the "bloom" has departed. That the change which honey undergoes by overheating is important, the polariscope proves. Long-heated honey not granulating tends also to show that the nature is changed; its color, flavor, and aroma, as we know, may also be lost. Perfectly grained honey is also a safeguard against adulteration. Under the circumstances a system of marketing extracted honey which would overcome the necessity of passing honey through the dangerous stage of liquefying would be an advantage. In the production of honey we should guard against the mixing, in extracting, of inferior and better grades of honey. In almost every case it results in a reduced total return of dollars. Second-class honey should be sold as such, and kept separate.

THE NATURE OF HONEY; THE IMPORTANCE OF RETAINING THE AROMA.

To produce and sell honey intelligently we must understand its nature. Honey is more than a sweet. Sole leather and beef-steak, with our present knowledge of chemistry, are alike, yet it would be a difficult matter to convince even a hungry man of that fact. Within the last two years Prof. Shutt, of the Dominion Experimental Farm, Ottawa, Canada, has discovered that the past methods of analyzing honey are faulty, and we may reasonably hope that the stage of perfection has not yet been reached. Honey has, in addition to water, saccharine matter, and formic acid, a volatile oil distilled by the blossom which secretes the nectar. The

power of these essential oils can be best understood when we remember that in Eastern countries certain plants yield a honey which, consumed, produces death. It is this oil, volatile in its nature, which partially gives honey its aroma. We detect this agency in the blossom, in the field, when we lean over the hive in manipulation, again as we extract, and last, but not least, we know the delicious and often delicate flavor possessed by honey fresh from the hive. Is it desirable to retain as much as we can of this for table use? Assuredly. Why should we follow blindly the lead of those who have gone before, and expose our extracted honey to the atmosphere, thus losing what, in my estimation, is so desirable to deliver to the consumer? There is still much to learn about the ripening process which nectar undergoes in the hive. I see questions which, for their solution, require the careful, expert, and original thought of the bee-keeper and the chemist, the solutions of which questions will be of practical and lasting benefit to the bee-keeper and consumer of honey.

The bee-keeper gets only a small percentage of the nectar the bees gather. The brood is fed; the heat and energy of the bee has, through food, to be provided for; the brood has to be warmed, and the process of ripening through raised temperature and the fanning of the atmosphere in and out, all has to be done at the expense of food consumed. We masticate food, and change starch to sugar by the addition of certain secretions; in this the food undergoes the first stages toward digestion. The bees by nature are compelled to gather nectar a little at a time; they again transmit it to fresh bees at the threshold of the comb; again as it is moved about from cell to cell in the process of ripening. In all of these, as in the slow process of mastication, the honey is being inverted, and in honey we have a partially digested or predigested food ready for assimilation. No other sweet on earth can boast of this in its favor. The above processes, properly carried out, are done at a great loss in quantity from what is first gathered; but it is the machinery power—the coal, if you will, to produce the energy required to gather, change, and seal this food in its stages from nectar to our valuable food—honey. At no stage should this process of ripening, etc., in the hive be stopped by the bee-keeper. To do so must work injury to our market.

WHY THE SELLER SHOULD UNDERSTAND THE POINTS OF SUPERIORITY.

Again, if we do not know wherein our goods are superior to others, which, at first glance, appear to be the same, and are, *not cheaper*, but at a less price, how can we expect to sell them to advantage and do them justice? There is simply no answer to the question. We must understand their points of merit and have faith in them. Possessed of that conviction we can hope to convince *others*.

Think of a butcher, a drygoods drummer, the hardware man, acting in that capacity for a horse-dealer; the dairyman pointing out the merits of fruit, or the poultryman sent as an expert to find a market for cheese and butter, and you have a spectacle of what every Tom, Dick, and Harry is expected to do for honey. Even our governments are guilty of such action. It is often done unthinkingly, but the consequences are disastrous to our honey market.

INCREASING THE DEMAND BY PROVIDING BETTER FACILITIES FOR SELLING.

Bee-keepers should combine in every large city, and have a wholesale and retail establishment for the sale of honey. The retail establishment could have for sale articles of food, etc., in which honey has been used as an ingredient. Here the highest in the land could be drawn by advertising exhibitions of bees, their handling at certain hours, observatory hives, and displays, setting forth the natural history of the bee and so on. Such a store, at a comparatively small outlay, could be made the talk of the city, and reach the most intelligent and desirable class of citizens, and honey be made to reach the tables of thousands upon thousands where the article is to-day a stranger. In other places, arrangements could be made to make the sale of honey a strong (not neglected) department of a business already established, or the business in certain places might be run for only a portion of the year, but always have in charge a bright, alert, expert man having confidence in and knowing the goods. These centers could also be made centers of instruction to employees in establishments where the sale of honey would be desirable.

MAKE A BIG DIFFERENCE BETWEEN WHOLESALE AND RETAIL PRICES.

Give a proper margin to the one who sells your honey. Bee-keepers as a body are much to blame for having their wholesale and retail prices too close together. A retailer should have not less than a margin of 20 per cent.

HIGH PRICE NOT AN OBSTACLE.

We as bee-keepers often talk as if the price were our main difficulty in selling, and as if the price alone stood in the way of a larger market. I venture to assert this is not where more than half our trouble lies. We could raise the price if we would only first improve the general quality, make stronger efforts to put the merits of honey before the public, distribute it more evenly over the country, and give the dealer a better margin. Does any one doubt it? Let him look at proprietary goods, trade-marked foods which stare us in the face on every table to-day; let him consider how much of their place on the market is due to real merit and how much to advertising. Draw your own conclusions and doubt no longer.

SUGAR TAKING THE PLACE OF HONEY.

Until millions and millions of dollars' worth of sugar at present consumed by our people

have been replaced by millions of pounds of honey we have no right to say there is no market for honey. Give honey back the place it once had as a sweetener, and our people will have back a greater measure of health. The public must, of course, be provided with what it wants; but our keynote should be to educate them to use what they need and what is best for them.

BRICK HONEY.

It is in our interest, and the interest of the people, to advocate for the table either comb honey or honey which has been sealed until granulated. For fancy trade we might put it into jars like cream cheese, and immediately run over the top a thin film of melted paraffine, the object being to exclude the air and retain the aroma of the hive. When granulated solid, as in large barrels, the block can be cut like cheese, with a wire, and retailed. I know of no better way of marketing, and you can in this way give a customer the most value for his money.

AID FROM THE GOVERNMENT.

Unfortunately for us as bee-keepers, governments do not do us justice. We can join hands with you over the line, which we as Canadians hope will not be effaced as long as man's government lasts, and we can feel with you that we have a grievance in common. Governments levy taxes upon the wealth obtained by bee-keeping, but, unlike other branches of agriculture, they rarely help us to solve our difficulties in production and marketing. The past history is that, in nearly every case, for political or other expediences' sake, incompetent parties have been appointed in the rare instances where any thing has been done. The government betrays its trust in this, and we as bee-keepers are worse off than before. Results in experiments have been given out where the expert bee-keeper can see under the veil, and gnash his teeth that his profession should be thus belittled; and the poor novice, swallowing in his verdancy all that comes from such a source, like the blind leading the blind, is brought into the ditch. If we want to make the best showing in marketing we must have government aid, and have the aid other departments of agriculture are getting, and which a branch of agriculture having power to produce wealth merits, and not have our governments, by their lack of action, blazon it abroad that bee-keeping is not worthy of or a rewarder of the highest agricultural intelligence and application.

Bee-keeping is a business. It requires experience, application, and intelligent care to succeed in it. The sooner we impress this upon the bee-keeper and prospective bee-keeper the better for our honey markets.

[The government of the United States is now doing much more for apiculture than it ever did before. There are three or four salaried officials in the pay of Uncle Sam who devote their whole time to the general subject of bees. New plans are under way

for a new and larger work, and it will not be long before bee-keepers will have no reason for complaint for lack of attention to their industry proper.

The foregoing is full of valuable as well as seasonable suggestions, and our readers will do well to give it careful thought.—Ed.]

HOFFMAN FRAMES.

Recent Arguments Answered by the Inventor.

BY JULIUS HOFFMAN.

After promising to write more about the Hoffman frame and V edge I looked over back numbers of GLEANINGS, and found that so much has been written about the frame, pro and con, by more able writers than I, it took the wind out of my sails, and I hesitated to say any more about the subject. However, as I have used the frame which is known by my name for over 30 years, I wish to say that I do not know of any other frame that could induce me to make any change.

MODIFIED BY THE ROOT CO.

To give the reader a better understanding of why The A. I. Root Co. thought proper to modify the frame so far as the top-bar is concerned, I will mention that the hive I use is rather cubical in shape, the top-bar being only 12 in. long, hanging across the narrow way of the hive, in rabbets only $\frac{1}{8}$ wide and deep.

The depth of frame is 12 in. outside by 11 wide, the projection of the top-bar resting in the rabbet only $\frac{1}{4}$ inch on each end. The manufacturer of the Hoffman frame (The A. I. Root Co.) for the very good purpose of making the Hoffman frame adaptable to the at present existing style of hives, made the change of the top-bar, differing from what I use.

UNSPACED FRAMES CONDEMNED.

To say any more about the advantages of self-spacing frames I think is unnecessary, as, for the practical bee-keeper, the loose swinging frame is out of date, although some would-be bee-keepers will still say that a loose not self-spacing frame can be spaced by fingers or eye measure speedily and correctly, and that a fixed-distance self-spacing frame is not as easily interchangeable. Mr. Editor, you know as well as I do how the combs in a colony of finger-spaced frames look after being worked for a time. Only an experienced worker could ever space them as accurately as they should be, not mentioning the careless or beginners, and, of course, combs will be in bad shape for interchanging, while the self-spaced are of a more uniform thickness, and better fitted for interchanging.

FORGETTING TO CROWD FRAMES TOGETHER.

Mr. J. A. Green, Oct. 1, 1904, says that the Hoffman frame is not the frame for average bee-keepers, as they will forget to crowd the frames together when finishing

work in a hive. This is easily answered by giving such average bee-keepers the advice to go back to the old box hive. However, I for one have a better opinion of the average bee-keeper. I know many of them personally who are not slovenly, but handle the Hoffman frame all right, although not experts.

DIVISION-BOARDS AND NUMBER OF FRAMES.

Right here I will say that I find division or spacing-boards essential with a spaced hanging frame, and of much importance to me. My hives hold eleven frames without the spacing-boards, but as a rule I use two boards and ten frames, which leaves space enough in my size of hive between the spacing-board and the hive-end for handling boards and frames with ease. However, I do not confine myself to giving a colony a certain number of frames. When I put on section-supers I regulate the number of frames to give or leave a colony, according to its strength in bees, so that the weaker colonies get 8 or 9 frames, and the vacant space is filled out with more spacing-boards, of which I always keep a surplus near by. With wedges behind the follower or spacing-board I do not bother, as the bees will fasten things well enough if we crowd frames and boards well together after working and handling them.

PROPOLIS.

This brings me to talk about propolis, which is generally held and talked about as a great nuisance. An excess of propolis, of course, is not desirable; but I consider it only a necessary evil, and, would rather have the frames glued together with propolis than not at all.

The V shape in the Hoffman frame is condemned by quite a number, as they claim too much propolis is used by the bees to fill up the space between the beveled edge where it meets the square edge of the next frame. This the bees do with me to such a small extent that I certainly want the V edge yet.

It does not give me much trouble in my locality, but the difference in breed did so quite considerably. I imported the Cyprian and the Caucasian bees, and found them to be excessive propolizers; they even would close the hive entrances with propolis so that only one bee could go through. I had also Italians that would use wax in place of ordinary propolis, packing it on their legs wherever they found any scraps of it lying round.

NAILING TOGETHER WRONG.

Another objection to the V edge is raised by C. Davenport, Nov. 15, also by J. A. Green, Oct. 1, 1904, about nailing the V-edge frame together the wrong way, so that the V and the square edge will not meet right. I will only say that I have had inexperienced hands nail V-edged frames together by the thousand, and would not make any mistakes after showing them how to do it. I invented the main features of the Hoffman frame, but I am tolerant enough not to find fault

with those who have different ways and appliances; and although there is more in the man than in the hive or frame he uses, I am sure the best frame will give best results in manipulating, and consequently in dollars and cents.

Mr. Ernest Root, I believe, has the right idea when he thinks of manufacturing both the V and the square edge Hoffman frame, so that all can have their choice, and so do away with considerable grumbling and fault-finding, which is often caused by difference in climate and locality, and also by difference in the breed of bees.

To wind up, I will say that many criticize or find fault with a new thing which they have not tried long enough. For example, it was thought the Hoffman frame could not be used in Cuba. How is it now? The A. I. Root Co. sends carloads there and to other hot climates. Louis H. Scholl, Jan. 15, 1905, states that he used the V-edge Hoffman frame for a number of years, and thought the V-edge unnecessary, but has changed his views since, and decided in favor of it.

Canajoharie, N. Y.

PRODUCING BOTH COMB AND EXTRACTED HONEY FROM THE SAME SUPER.

How to Control Swarming when Running for Comb Honey; a Valuable Article.

BY E. D. TOWNSEND.

I think I have something good for the readers of GLEANINGS. It did not originate with me, so you see if I should get enthusiastic before I am through, and paint the idea a little rosy, I can not be accused of lauding my own ideas. The credit belongs to that veteran bee-keeper, Mr. O. H. Townsend, of Otsego, Mich., and was given to me between sessions of our Michigan State Convention at Grand Rapids, in February. You know, E. R., that, in producing comb honey, if we give a super of brand-new sections with full sheets of foundation to a colony of bees at the approach of the honey season, likely as not they will sulk, or at the best do only a little work in the sections, and then swarm. To overcome partly this tendency in the bees to go above, probably the majority are "bait sections," dirty things of the previous season's use. The honey in these dirty sections is always of an inferior quality. The argument that is usually presented in favor of this use is that they cause the bees to enter the sections so much more readily that really they do not cost the producer any thing — that we get just as much or more honey, exclusive of the bait sections, so the bait sections really cost us nothing; but I think most of them eventually find their way on the market, though, and I am sure these bait sections do not help the

market any, and are quite likely to cause less consumption of comb honey.

Perhaps the next most marked system is Mrs. Barber's plan of giving each colony a shallow super of drawn comb to start them above. After they are well started the drawn-comb super is removed and a super of clean new sections with full sheets of foundation is substituted. The bees being used to working above do not hesitate about going into the sections when substituted for the combs.

I now think the reader's mind is in the right channel, so it will be easy to convince him of the superiority of the Townsend plan, which I am about to describe.

THE ARRANGEMENT OF THE SUPER TO PRODUCE BOTH COMB AND EXTRACTED HONEY.

In arranging the super, use two super-springs to each super, one at each end; and when I speak of extracting-combs I mean those that are white and nice—no brood ever raised in them. The first super given each colony at the approach of the honey-flow is arranged with one shallow extracting-comb at each side, and one in the center; the rest of the super is filled with clean sections, with full sheets of foundation; then when this super is partly filled with honey, the usual time for giving a second super, in fact, all the supers given after the first are placed *under* the previous one, and are always arranged with *one comb at each outside of the super*.

Now, when we guess we shall need only one more super to hold the rest of the honey-flow, a super of all drawn combs is given *on top*.

Doesn't it begin to appear to you that there are great possibilities for this system in the future? Mr. Townsend claims for this system *much more comb honey*, and quite a quantity of the finest grade of extracted per colony.

The great point in favor of this system is the stimulus the extracting-combs give a colony, causing them to go above immediately, as soon as there is just a little honey in the field; thus the brood-nest is kept in almost the same condition that is secured in the production of extracted honey, this causing very much less swarming, and keeps the colony in that condition so essential to the best results in honey production. Then the bait-comb nuisance is done away with. This in itself is enough to make it worth while to adopt this new system.

Mr. Townsend uses a closed-end extracting-frame that fits his super. Any one can figure out the size and thickness of frame that will fit his super; but we prefer $1\frac{1}{2}$ -inch spacing in our extracting operations, but of course there are no separators used in them. If separators are used, as would be likely in a comb-honey super, $1\frac{1}{4}$ or perhaps 2 inches from center to center would be nearer right. Likely the width of one's super would determine to quite an extent the spacing he would have to adopt. Make

them fit your super. Isn't this a grand idea, this using an extracting-comb in the outside of each super, making this part of the super that is usually finished last the first that is commenced, with this condition secured. Is there any question in the mind of the experienced comb-honey producer that the rest of the super containing sections will be drawn out with astonishing rapidity, thus securing that ideal finish so much sought after, and heretofore secured in only a lavish honey-flow? I predict a great future for this system.

PRODUCING BOTH COMB AND EXTRACTED HONEY IN THE SAME FULL-DEPTH EXTRACTING UPPER STORY.

In producing extracted honey we use the ten-frame Langstroth hive, and use eight combs in a ten-frame upper story to extract from. Now, when starting a new yard, usually by buying most of the bees, our practice is, in furnishing them with combs to be used in their upper stories, to go to a yard having their upper stories all full of drawn combs, and take half their combs to the new yard. This leaves four drawn combs for each upper story at both yards. Now we put in the place of the combs removed four wired frames with full sheets of foundation. Some of you by this time are likely wondering what this has to do with raising comb honey in an extracting upper story. It is this. We find with the upper stories arranged with half-foundation and half-drawn combs we can prevent swarming to nearly the same extent as when full sets of combs are used. Taking advantage of this fact the question arises, How many wide frames of eight sections each can we substitute for these four frames of foundation, and still prevent swarming? If we could sandwich in only three to each upper story, that would be 24 sections to each upper story.

Perhaps it would be well to close the season with a full set of combs, placed on top the same as I told you heretofore, with the single-depth super. The idea is, to get all our partly filled supers exclusively in the extracted form. The object is this: Every wide frame of sections we can get in this way is worth in the market about twice what it would be in the extracted form. It is a quicker sale, and the tendency of the times is that specialists, with their increasing number of yards that are at the present time starting up over the country, will in the future produce such large quantities in the extracted form that there is a possibility of a still wider margin in prices between the two articles unless some such arrangement as I have outlined above can be worked, so quite a per cent can be taken in the comb-honey form, and still control swarming in the outyards.

In conclusion I want to add that I am an enthusiast over this idea that was brought forward at our convention at Grand Rapids last month, and during the next few years I shall test this system thoroughly in both my

comb and extracted honey supers, and shall add all the wide frames of eight sections each to my extracting upper stories that I find I can, without causing swarming at our out-yards where no one is present to hive swarms that would be quite sure to come if we used too many sections in place of drawn combs.

Remus, Mich., May 8.

[This I consider a very valuable contribution to our bee literature of this year, and I hope every one of our comb-honey people will read it very carefully.

A few years ago the fact was pounded forcibly into me that some colonies were inclined to sulk the minute we gave them a super of sections. They would crowd every available cell in the brood-nest, and very often swarm before going into the sections. I found that I could get such colonies over their sulkiness to a very great extent, or, rather, give them no chance to get sulky in the first place, by giving them a shallow super of extracting-combs; then when they *once got nicely started going above*, take away the super and substitute one containing sections with full sheets of foundation, and, presto! they would go to work in this also. In some cases I put the shallow extracting-super with bees on top. In other instances I shook out the bees and gave the same super to another would-be sulky colony. Later on, Mrs. A. J. Barber, quite independently of myself, struck on a similar plan, and since then a good many have practiced the same method of producing both comb and extracted at the same time, from the same colony, with gratifying results.

But here is a plan which I believe to be superior to the Barber; and the further fact that it is indorsed by such men as O. H. and E. D. Townsend shows there must be something good in it or we should not have heard of it. It comes just in the nick of time for many of our subscribers to put it to a test, and I hope they will do so at once and report results.

Most of the comb-supers of to-day have section-holders. Those for plain sections are only 1½ inches wide. I see no reason why a section-holder for plain sections (or for the other kind) could not be readily made into an extracting-frame by nailing in a top-bar between the two ends so that it will come flush with the top of said ends. From this top-bar might hang a full sheet of foundation. One could even put fences on either side, after the honey crop, cut out the comb as so much chunk honey, or, better, perhaps, extract, and save the empty comb for bait on the Townsend plan for the following season. There are probably thousands of old-fashioned wide frames still in use. These can be used in connection with full-depth extracting-supers.

Either plan is so easily carried out by appliances that bee-keepers *already have in hand* that we shall hope to get many reports ere two or three months roll by.—ED.]

A PLEA FOR A LARGER PACKAGE OF COMB HONEY.

The Pound Section to Blame for the Depressed Condition of the Honey Market.

BY VIRGIL WEAVER.

Pages 398 and 437 indicate to me that the section-honey men have gone into the ditch; namely, big supply, no demand. It seems to me that a pound package is too small. In the first place, it is harder to produce, thus reducing the profit along this line. Then, again, it has a tendency to reduce the demand by educating the public to buy in small packages, or just a little at a time, if you please. If a merchant has honey to sell, a buyer will take a pound section; two if he will give a reduction, and quite likely this is the first and last for the year; while, on the other hand, if the package contains three or six pounds they will buy just as quickly; then by giving a reduction of five or ten cents as an inducement to take two packages, as per the sections, he has sold six or twelve pounds instead of one or two, and this is quite a gain.

The northern producers of comb honey can learn something from Texas—that is, produce "chunk" comb honey in shallow frames, and sell in three and six pound friction-top pails.

There will be no big demand for comb honey so long as it is put on the market in one-pound packages. I agree with Mr. G. M. Doolittle, that, by reducing the two-pound section to a one-pound was a serious mistake. If section honey we must have, the larger the section the better. I think the section itself has done more damage to the comb-honey market than all other agencies combined. There are several reasons for this. The manufactured-comb-honey lie was caused by section honey. They are so nearly perfect that they do look more like the work of a machine than the work of bees. To the uneducated public, all sections look alike. The casual observer does not go into the details of producing section comb honey as we bee-keepers do. They give a case of honey a glance, and pronounce it bogus because "I saw it in the paper." Show them a pail of chunk comb honey, one comb thick, one thin, one large piece and one small, and this to the general public looks more like the work of bees. Sections are hard to keep clean. It takes special care in dust and insect proof cases to keep it nice. This is a serious objection to section honey by many consumers, and to the grocer in particular. Here in our towns now I see section honey exhibited for sale without any thing over it. This is not much of an inducement to nice housekeepers to buy and eat honey. No wonder it is retailing at 10 to 12½ cents per lb., and no wonder the market is glutted. The Russian tin boxes would protect the honey, but they leave us in the same old rut—too small a package. If we must make a change in our package why not "go the

whole hog" and adopt the three and six pound friction-top pail? They are dust and insect proof, easy to handle, harder to smash in shipping; are shipped at the railroad's risk and at a lower freight rate; are useful after the honey is cleaned out of them—something that can not be said of the section.

I should like to make a suggestion to the Honey-producers' League—that is, to put traveling salesmen on the road who can sell and talk honey. Sell to the grocery trade. Every time he sells a grocer say 500 lbs., advertise it for him in his local paper, and in large towns advertise the League. I have tried this with the very best results. The grocer never has any left on his hands, and I most generally make him another shipment. I sell my extracted honey at 10 cts. wholesale; comb honey 14 cts., while my neighbors who depend on the local market wholesale their section honey at 8 and 10 cts. I will explain a little further.

I keep myself posted as to where there has been a failure in the honey-flow; and after the season is over with me I go to these localities and sell my entire crop in a very few days. There is a great demand for pure comb honey in our large cities that is never reached, because people are afraid of section honey. By advertising, the Honey-producers' League can do much good. The \$1000 forfeit will help; but as long as a customer can say, "I want a pound of your nice honey you have advertised," there will be no demand equal to the present supply of section comb honey; therefore give us a larger package—something that will keep the honey secure until it is consumed, be that a day, month, or year.

Chunk comb honey will not have to lie on the counters a year or two before it is consumed, as section comb honey has to do; therefore it will not get an opportunity to candy. This eliminates the only objection to the friction-top pail.

Ainsworth, Ia., May 1, 1905.

[After reading Mr. Weaver's article one can not help acknowledging that he may have a good deal on his side of the argument. It would seem a little unorthodox to go back on section comb honey, which has seemed to be a long step in advance over box-hive comb honey, and to a great extent it certainly was and is. At all events it is perhaps possible that comb-honey producers have been concentrating their efforts too much on one style of package.

The bee-keepers of Texas have made a great success with their chunk or bulk honey; and it is no doubt true that we of the North ought to give more attention to it ourselves. Probably the city markets would not take to it very readily; but the local trade, especially the trade that knows *personally* the producer, would probably prefer to buy honey in that form to that which looks so nice and pretty in little boxes, but which, in the eyes of these same uninitiated, are suggestive of bogus or so-called

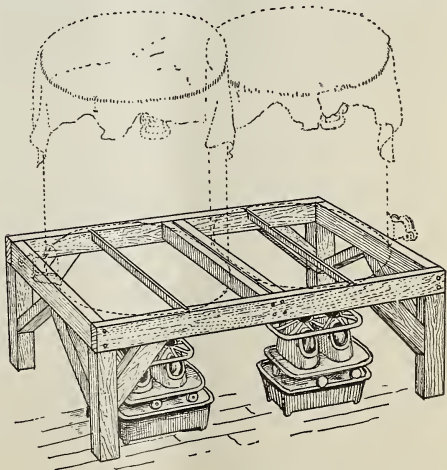
manufactured comb honey. But Mr. Weaver strikes on one very important point—that of inducing the trade to buy not merely one pound at once, but five or ten. It often requires almost as much effort to sell one pound of comb honey at a certain price, say 15 cents, as it does to sell five pounds of bulk honey, we will say at 10 or 12 cents. Manifestly the bee-keeper would make more money at 12 cents than he would at 15, for his bulk honey would not require special sections, and he could put into the pails combs with uneven and unsealed cells as well as those that are extra fancy, so far as whiteness and evenness of capping are concerned, and get the top price for *all* his comb honey.—Ed.]

WARMING EXTRACTED HONEY.

How to Do this with Little Heat, and without Danger of Injuring the Flavor.

BY G. C. GREINER.

The accompanying illustration, Fig. 1, represents a plan which may greatly assist in overcoming a certain trouble in the production of extracted honey. I aim to have all my honey drawn from the tanks, either into retail packages or into 60-lb. cans before granulation takes place. But sometimes, especially in the later part of the season, it happens, by a little neglect on our part, or by compulsion of prevailing conditions (for we are not always master of the situation) that the process of granulation begins before



we really expect it, thus making the drawing-off a very slow operation, if not entirely impossible. On account of the weight of our tanks when full (mine weigh approximately 400 lbs.) it is practically impossible to handle them, which would be necessary if we had to move them on to a stove or some other heating device for reliquefying. I have found by actual experience that the application of the little two-wick oil-stove,

as shown in the illustration, simplifies the matter to perfection.

Last fall I was caught as above mentioned. When I undertook to draw from one of my tanks the honey had thickened to such a degree that it would hardly pass through the gate; it would seemingly take ten or fifteen minutes to fill a one-quart can. This state of affairs presented to me a welcome opportunity to test the illustrated heating scheme, which I had previously (for a number of years) planned to put into practical use whenever its necessity should occur. To my great satisfaction the result was all I had hoped for. After the little oil-stove had been lit and turned to a very moderate heat, not more than the hand held against the bottom of the tank could bear, for about six hours, the honey would flow from the gate almost as rapidly as when first extracted. To be sure, it was not all melted yet, but by giving it a little more heat and more time it could undoubtedly be reduced to its former fluid state.

Until last winter I always used for my honey-tanks solid two-inch-plank benches. Of course, these would not permit the use of the stove as I had planned; and to be prepared for the emergency I had built a stand as shown in Fig. 2. This is simply a frame of 2x4 scantling with legs and braces of the same material. Being calculated for two tanks, its size is about two squares of the tank diameter. This gives the tank a support of four two-inch arcs, see dotted lines, leaving the center all exposed to receive the heat from the stove below. As a safeguard against a possible overstrain on the bottom of the tank, and at the same time to interfere as little as possible with the heat coming in contact with the bottom, a piece of common buggy-tire is slipped into a groove of the frame, which is also shown by the drawing.

It must be remembered that a tank of honey can be easily damaged by the application of too much heat; it is, therefore, necessary that we be very cautious when using artificial heat in this way. It would be a safe guide, when turning on the heat, to lay the hand against the bottom of the tank above the stove, for I hardly think that any harm could be done by any heat a person's hand can bear.

There is another advantage connected with this heating scheme. We are sometimes anxious to have a tank of honey go through its clarifying process sooner than it naturally would. A little additional artificial heat, even when honey is all liquid, and when the summer temperature is at its best, will help to hasten clarifying.

At other times honey may be so very thick that those little specks of impurities, whatever they may be, are extremely slow to come to the top. Here, too, the little oil-stove may help us out.

La Salle, N. Y.

[Liquefying or heating honey by means of an oil-stove as shown in the above illustration, I believe to be an excellent idea. It

has the merit of a slight amount of heat, which can be prolonged without perceptible variation for a day or two at a time; for a low gentle heat for a long time is better, much better, than a high temperature for a short time. Honey liquefied as shown would lose scarcely any of its aroma at all. Those who do a business of bottling can put their honey in with this kind of outfit more economically than with a gasoline-stove, where the heat would be intense for a time, and then could be shut off.

But I would suggest that it would be more economical still to box up the sides and ends of your topless table, and then use only one oil-stove. The confined heat would probably be equal to that of two stoves where a large portion of it would be dispersed and do no good. A little ventilation, of course, should be provided at the bottom—just enough to permit of a slow circulation. I do not believe there would be any danger of setting fire to the woodwork with only one stove. If the heat were too great, light only one burner. I suggest that you try the experiment, and report the result in these columns. We will pay for the time and material to board up the table if you will send us in your bill of it with a report.—ED.]

THE SCENT FACTOR IN INTRODUCTION.

Has it been Overvalued?

BY ARTHUR C. MILLER.

Mr. Root:—I beg leave to reply to Mr. G. W. Phillips' article on p. 124; and as he is speaking for you I shall quote some of your statements as well as his.

He begins by saying that I am correct in a few of my assertions, but he fails to specify which. In criticism he says that I seem "to take it for granted that we believe scent to be the only factor worth consideration in introducing queens." I fail to see how he deduces that from my article.

But here is what you do say: "The cage should be on the frame (where the bees can get acquainted with the queen) for at least twenty-four hours," A B C book, page 227. And, "The queen thus acquires the scent of the combs, brood, and of the cluster, and hence will be more likely to be accepted," A B C, p. 228 (italics are mine). On p. 231 of the same book is a statement that it is the old bees that cause the trouble in queen introduction. Have only the old bees the sense of smell? Scent and old bees are the only two factors given in the section on "introducing." Again, "Dr. E. F. Phillips has shown that bees recognize each other entirely by the scent," GLEANINGS, Sept. 15, 1904, p. 886. I can agree to that, and still not have to qualify my statement that the scent factor in queen introduction has been overvalued. Still again, "If the new queen has acquired the scent of the bees of the hive she is just as much a part of the colony, and will be accepted as readily as though she had been in the hive as long as the old

queen," GLEANINGS, Sept. 15, page 886 (my italics).

Would I be wrong in inferring from these statements of yours that you "believe scent to be the only factor worth considering"?

What I did say was that too much stress was laid upon it. Further, I specifically stated that it was "a reasonable supposition that each colony has its individual odor." I also said that this odor might "have some bearing, in that it possibly acquaints the queen of the fact that she is in a strange place, and so cause fear unless this is overborne by hunger." Perhaps I should have done better to say, "cause fear or arouse a combative spirit," because we do not *know* whether the queen or the workers give the signal for battle, though I have reasons for believing that it is the queen.

Mr. Phillips also cites exceptions to the "rule." If odor were of the value he gives it, such exceptions would be rare; but, as we all know, they are not, hence it is proper to question the extent of its influence. In uniting bees he says they sometimes fight and sometimes do not. If odor were as vital as stated they would always fight despite tobacco smoke or any other smoke; for individual body odor, if pronounced enough to possess the importance ascribed to it, is above and beyond being submerged or eliminated by any such superficial application.

In regard to my statement that bees are sometimes allowed to pass freely between colonies, he suggests that I look again. I will answer him in his own words: "He ought to try a thing before he condemns it" (GLEANINGS, page 126, foot of first column). Because he knows nothing of it is no proof that it is an error.

He says I have only to test the caging method to find out that it is the safest by which queens can be given to fertile-worker colonies. And you say, "It is *almost impossible* to introduce laying queens to such colonies, A B C, p. 236 (my italics). I do not find it difficult to introduce queens to such colonies, and I use the "direct" system for the purpose.

The caging system has its merits, but its usefulness is not due to its overcoming scent. Direct introduction, by the way, was used for half a century or more before Mr. Langstroth's book appeared. Simmins only developed and systematized it, and brought it to public notice. I have not heard of any way of presenting a queen to the bees, which I have not tried.

In referring to introducing queens to fertile-worker colonies, Mr. Phillips cites some so overrun with laying workers as to make it possible to pick them out by catching them in the act. It is comparatively easy to identify the guilty ones without waiting to catch them laying, after the observer has once become familiar with these peculiar bees.

If odor is the governing factor in a queen's reception, perhaps somebody can explain why several alien queens can be simultaneously turned loose into a colony of bees and

all be peaceably received. They can't? Oh! yes, they can.

Expunge the odor factor, and still nearly every example cited by Mr. Phillips is susceptible of a rational explanation. I do not for an instant pretend to be above error in my conclusions about odor; but I have yet to see any convincing *proof* that it exists to the degree taught, or that it is of the importance ascribed to it. If it is so powerful a factor, how can the multitude of constantly recurring exceptions be explained?

As I have said before, we are so imbued with the teachings of our predecessors, whether they are right or wrong, that it is almost impossible for us to study the bees with an unbiased mind; but until we do that we need not expect to advance very far in accurate knowledge of bee life.

Providence, R. I., March 20.

[This article has been held in order that the points at issue can be tested out among the bees. If the scent factor has been overvalued (and perhaps it has) let's know it.—Ed.]

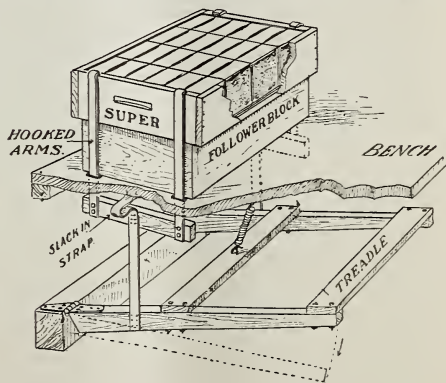
A COMB-HONEY EJECTOR.

A Device to Push the Filled Sections Out of Supers without Breaking Them.

BY HENRY STEWART.

In packing honey I have used almost all kinds of supers and many different devices for getting the honey out of them, but I have never been quite suited with any method I have ever used except this one.

For convenience, both on the part of the bees and of the bee-keeper; for simplicity, cheapness, durability, and profit, my choice of all supers is the T super, with the beespace at the bottom, the quilt covering the



sections, the flat cover and the 20-lb. stone—well, no, not the stone. I use shade-boards instead. I also use staples as T rests in the bottom of the super.

My method of emptying these has been to elevate the super, bottom upward, on the edge of two blocks, and with a follower and lever force the contents down and out. My present method, which I put into practice

last season, is just the reverse. Instead of elevating the super bottom upward, and forcing the honey downward, I elevate the follower, set the super right side up on top of it, and force the rim of the super down and off, as you would pull the hide off from a rabbit.

One of the secrets in successful packing of comb honey is to get it out of the supers with the least possible wrenching and jarring, which will break cappings and cause the honey to leak. In this respect this remedy is very nearly perfection, as the whole strain of emptying comes on the rim of the super and not on the honey.

This method originated with me in an endeavor to get some system that had in it rapidity, and at the same time would do away with the annoyance of the drip in the bottom of the shipping-cases, and in this I was amply successful in both features; and if a description of the device will be of benefit to the fraternity they are more than welcome to it.

On top of my packing-table, a little bench the height of my supers is constructed. The top of this bench is the follower above referred to, and should be slightly smaller than the inside of the super; and if the reader should be so unfortunate as to be one of those T-super fellows and uses staple T rests, the follower should be so slotted as to let these staples through. Fasten this bench permanently so the side of the bench will be parallel with the table, to get correct positions. Slip an empty super over this bench, and at each end, just outside of the super, and near the corners, cut two holes $\frac{1}{2} \times 1$ through the table. Take four pieces of strap iron, say $1 \times \frac{1}{2}$, and sufficiently long to reach from the top of the super placed on top of the little bench to 4 inches below the openings in the table. Three-quarters of an inch of one end of each iron bend to a right angle, and near the other end drill two $\frac{1}{8}$ -inch holes. Now pass these irons through the holes in the table so the L-shaped ends will rest on the ends of the super. Now under the table at each end yoke each set of two irons together by bolting them fast to a piece of board $1 \times 2\frac{1}{2}$ inches. In the center of each of these yokes fasten a strap which will extend downward and fasten to the arms of a treadle directly below.

This treadle should be securely made with two arms, a cross-bar, and is hinged at the back of the table four inches above the floor, so that both arms must work in unison. Between the bottom of the table and the treadle fasten a coil spring to lift automatically the treadle, and the ejector is ready for action.

To operate it, place a super to be emptied on top of the little bench, right side up. Hook the irons over the ends of the super; step on the treadle, and the work is done.

This is true when the weather is warm; but when it is cold, and the propolis is stiff, a light-weight person will need all the power he can get on the treadle, so it is advisable to place the little bench as far back on the

table as possible, and figure to get as much lever purchase as possible in the treadle. In obstinate cases a stroke with a hammer or a pry of a chisel on each corner while power is being applied will break the propolis, and the weight of the body will do the rest.

To the extracted-honey fellows who use shallow closed-end-frame supers, here is something useful. Construct one of these in convenient position to your uncapping-can and see how nicely it will work.

Prophetstown, Ill., Feb. 24.

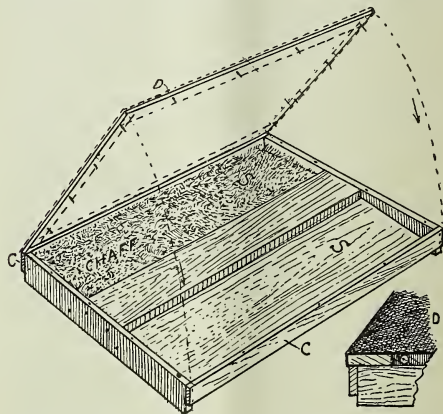
CHAFF-PACKED COVERS.

Making out of Old Leaky Excelsior Covers.

BY C. F. BENDER.


The excelsior covers may be very good if they are kept well painted; but if the painting is neglected until they become season-checked and begin to leak, they are something of a nuisance. I have a way of changing them into good waterproof covers, without very much labor or expense. Of course, it does not pay to buy the excelsiors new just to change them into double covers; but if one already has leaky ones on hand, that is a different matter.

The strips C C are first put on, coming up flush with the top of the cleats. Then the spaces, S S, are filled with chaff or sawdust,



and the whole top is covered with thin lumber. Put on a roof of Neponset or other good roofing-paper, and give it three coats of paint. This cover always stays flat, and gives good satisfaction the year round. I have had fifty of them in use for two years, and like them nearly as well as the regular double covers. They are a trifle heavy, but for that very reason they never need to be weighted, and, if painted white, no shade-boards are required. The paper is quite a protection against heat or cold, holds paint much better than wood, and lasts longer than tin. If you want a lasting cover, don't use cleats to hold the paper on. Simply turn under the edge about $\frac{3}{4}$ inch, by folding over a straight edge, and fasten with heavy tacks.

Newman, Ill.



The Bees

are in the

Clover.

BY EUGENE SECOR.

A sound of revelry is in the air,
The bees are in the clover.
The skies are soft and June is fair,
The bees are in the clover.

The incense from the pasture lot
And roadside's filling every spot,
'Tis wafted to our trellis'd cot--
The bees are in the clover.

I hear a million silver wings--
The bees are in the clover.
Gheathed are a million fiery stings,
The bees are in the clover.

I hear the robin's cheerful note
From out a lusty, tireless throat,
Sweet June is young and grief's remote,
For bees are in the clover.

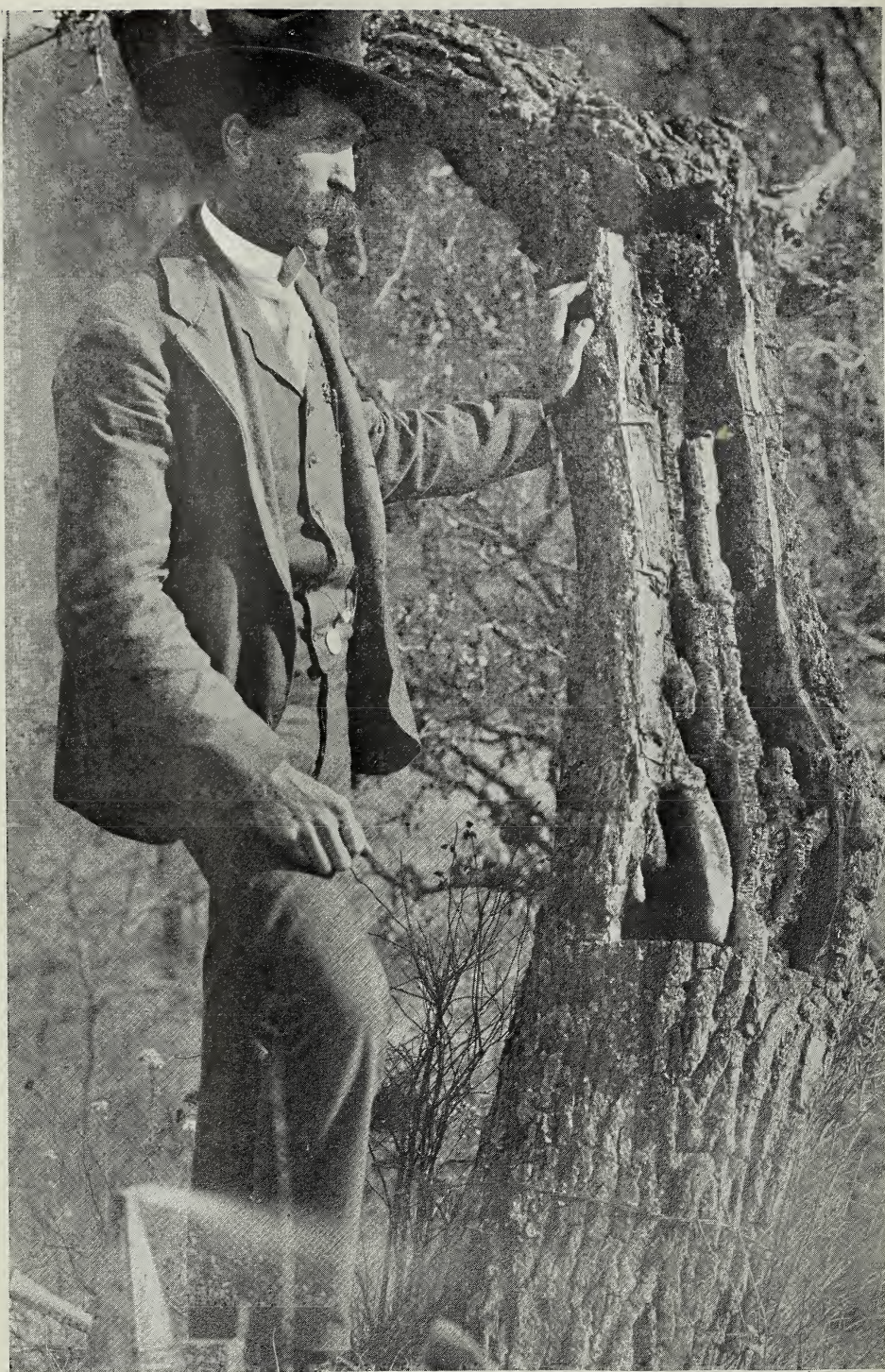
Goodbye to books and pent-up care,
When bees are in the clover.
Give me the fragrance-laden air
When bees are in the clover.

Give me the leafy woods where songs
Of birds my happiness prolongs,
And where I hear the myriad throngs
Of bees at work in clover.

(Refrain)

The bees are in the clover bloom,
Happy as a lover,
Gone is winter and its gloom,
The bees are in the clover.

R. V. MURRAY.



THIRD PRIZE, FIRST CONTEST, CLASS B. "ANY OBJECT RELATING TO BEE CULTURE."
GEO. A. TRENTON, MAZEPPA, MINN. SEE EDITORIALS.



THIRD PRIZE APIARY. ADAM CLARKE, LE MAR, IOWA. SEE EDITORIALS.



BUILDING DRONE COMB.

"Say, Doolittle, I am perplexed on the comb-building matter. When I wish my swarms of bees to build worker comb at this time of the year they generally build only drone comb. Can you tell me something about this?"

"All observing apiarists know that, as the season for swarming draws on apace, and the colony is about to cast a swarm, the queen ceases her prolificness, so as to be able to fly and go with the swarm, so that, when swarming does occur, said queen is scarcely larger than a virgin. Nature has so ordained things for two reasons, the first of which is that the queen can fly; for, if taken from the colony when no such preparation has been made, she can not fly at all, as she is so heavy with eggs. The second reason is that the queen need not be damaged by an over-accumulation of eggs before there is time for the bees to construct comb in the new home for her to deposit her eggs in. Thus we find that all good queens do not become fully prolific again until nearly a week has elapsed after the new colony has arrived at its new location or home."

"Well, what has that to do with what I wished to know? It was not about queens or swarming I wished to know just now."

"Just this: During this week comb has been built very rapidly, especially if honey is coming in plentifully, while the queen has not been able to keep up with the workers, owing to the reasons I have given you, the result of which is that the bees commence to build store comb, which is always of the drone size of cells."

"That is something I did not know about; but it does look reasonable that, when building cells for honey only, the size should be of the drone order. But why did you speak of good queens in this matter?"

"Because some seem to think that no drone comb is built by new swarms unless the queen is an old one, or one which is beginning to fail. I consider that the reason I have given has more to do with the building of drone comb by newly hived swarms, with the majority of bee-keepers, than does the failing-queen part; but I am free to admit that much more drone comb will be built where there is a failing queen with any colony building comb."

"Well, if you are right how is such a state of affairs to be avoided?"

"The way I manage is to give the colonies or swarms which are hived on frames not filled with foundation a brood-chamber of only a little more than half the size of the one from which they came, this smaller size

being made by contracting the chamber of the new hive to the size I wish by means of dummies or division-boards, and also giving them a set of sections at the time of hiving them, so that the swarm may have rather more room in such a prepared hive than they would if the hive had its full complement of frames with no sections."

"Ah! I think I see. This gives them room to store the honey they gather in the sections rather than in the brood-frames."

"Yes, and in this set of sections there should be several containing partially drawn comb, or 'bait sections' as they are called, in order to coax the bees up into the sections for storing their honey. And where such a start is made at first in the sections this gives the bees plenty of room above to store honey, thus not crowding them in the brood-chamber, so that comb of the worker size is built below, and that only as fast as the prolificness of the queen demands it. As her ability for laying increases, more comb is built, so that, at the end of the white-honey flow, we have the frames in the contracted brood-chamber filled with all worker comb, and the sections filled with nice white honey."

"I see. But the colony can not winter in this contracted hive, can it?"

"No, not usually. After the white-honey flow is over, the dummies are taken out and the hives filled with frames of worker comb."

"But suppose I do not have such combs?"

"Then I should wait till the dark-honey flow commenced later on, and give the colony enough frames filled with foundation to fill the hive, when these would be drawn out into nice worker combs also, the same being filled with honey, and thus your colony be in good shape for winter."

"Then you would not try to make this colony build all the combs the hive contains?"

"No. Although it can be done, yet my experience goes to show that it is far better to buy foundation for the remaining frames to take the place of the dummies than it is to try to make the bees fill them with worker comb, when they will, as a rule, try to build drone comb only."

"Why not fill all the frames with foundation on the start, and not try to have any comb built?"

"You can do this, if you so feel; and where any one has no time, or does not have the disposition to do the work this plan requires, it is well to fill all frames thus, for it will secure worker comb in all the frames. But in the use of the plan as I have given it to you, the cost of the foundation is saved with those frames which the bees fill with natural comb; and, what is still better, according to my views, the bees are put at work in the sections at once, and a greater yield of the more salable honey is secured; for, so far as I have ever been able to see, the bees work in the sections to better advantage while the bees are building the proper amount of comb below than they will with no comb to build. In other words, these frames are filled, apparently, without

the cost of any section honey, while it seems to give great energy to the colony so building comb."

"But won't the queen go up in those bait sections and put eggs in them, where only empty frames with starters are used in such a contracted brood-chamber?"

"She will be likely to. And I am glad you asked about this, as it would have slipped my mind to say any thing about this part of it if you had not. In all cases where empty comb is used above, over a brood-chamber having empty frames, a queen-excluder should be used, so as to keep the queen where we wish her. In this we have the advantage of those of the past, who had no perforated metal to use."

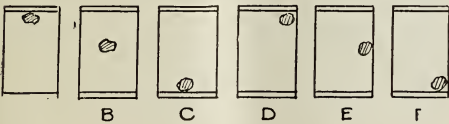
"But does not this queen-excluding metal hinder the work in the sections?"

"From many carefully conducted experiments during the past, I unhesitatingly say no!"



STONES ON COVER FOR SHOWING THE CONDITION OF A COLONY.

A stone about the size of a man's fist placed on the cover of a hive so as to indicate the condition of a colony is a convenience that, when once adopted, will never be discarded. The system which I will here outline meets all requirements for me.



A stone placed on the front of the cover and in the center, shown at A, indicates that the colony is queenless; B indicates a queen-cell; C, a virgin queen; D, that a queen has been introduced; E, diseased brood; and F, that a colony is weak in brood or needs other special attention. When the colony becomes normal, just drop the stone on the ground.

Now, I do not intend that those stone signs shall take the place of the pencil, for no bee-keeper is more than half a bee-keeper until he has learned to use a pencil, *not in a book, but on the hive-covers.*

When using stones in this way, a bee-keeper always knows how many queenless colonies he has, and in what condition they are, by just glancing over the yard. Then when working a yard so marked, one-third of the labor is saved. If queen-cells are wanted you know just where to go to get them; or if you come to a colony with a sur-

plus of brood you know just the colonies that are in need of it. In fact, the *only way* to work a yard properly is by using some such system of signs. **LESLIE BURR.**

Casanova, Cuba, April 10.

[Your arrangement to indicate the condition of the hives is a very good one. I have seen various modified forms of it in use; indeed, we have had a similar system in our queen-yards for the last ten years; but instead of stones we use small slates. We write the records on a special card tacked on the cover, then shift the position of a small piece of slate 2×3 inches from one part of the cover to the other, so that from almost any part of the yard we can see what colonies are queenless, what have introduced queens, what laying, tested, select tested, and extra-select breeders. A little stone or piece of brick will do nearly as well as the slate. In the filling of queen-orders this is often a great convenience, because the apiarist can make a bee-line direct toward the hive containing the kind of queen he wants. When he removes one he marks the card and then positions it to indicate that the hive will require a cell or an introduced queen very soon. The reason why we abandoned the record on the slate was that the slates sometimes become lost in windstorms, get broken, or, worse still, the records may be obliterated by a hard rain or made so indistinct as to be valueless.

I believe it is a common rule in any yard, where any thing is especially wrong with a colony, to put a stone, stick, or any distinguishing object, on the hive. At the very next visit the position suggests that the colony needs immediate attention.—Ed.]

CROSS BEES; CAN THEY BE CROSSED WITH CAUCASIANS TO MAKE THEM GENTLER?

I have trouble with cross bees, and have spent at least \$25 for queens in the hope of getting gentler bees. I made no increase last year, but requeened every hive, and now no one dare go near them. One man said he would burn them and quit. Could I cross them with Caucasians with good results? Where can I get Caucasians? I don't want to give it up, nor can I afford to requeen all again. **P. T. LEMASTER.**

Spartanburg, S. C., March 11.

[The Caucasians are said to be a very gentle race of bees. We expected to have some here before this, but they have not yet arrived. How much gentler than our Italians they are we do not know from experience. Crossing them with Italians may make a very desirable strain, combining the good qualities of both races in one. Perhaps you will be better suited with pure stock, which will be ready for delivery some time this season, we presume.

But from what you write it is my impression that you have not yet learned to handle bees so they will not be disposed to sting. One season I worked an entire month in our bee-yard rearing queens, and I did not get a

single sting, and the yard had over 300 colonies and nuclei. But I was careful to handle the bees only when I knew they would be good-natured. I never allowed them to get to robbing; waited until the atmosphere was warm before opening any hives; and I also took great precaution to blow a little smoke in at the entrance, and a little over the top of the hive, and especially into the crack while removing a cover from a hive. This part is very important. With the right kind of management the average Italians can be handled without a sting.

I am free to admit that, if I had been extracting, and shaking and brushing the combs, it would hardly have been possible for me to go to the length of time I did. But I see no reason why one could not produce comb honey by using bee-escapes, and work with few or no stings. In your case it may be advisable to work for a while with bee-gloves.—ED.]

E. W. ALEXANDER'S METHOD OF ARTIFICIAL INCREASE; FERTILIZING IN UPPER STORIES.

I have just read with great interest E. W. Alexander's contribution, on making increase, page 425. I am about to make 100 new colonies; and as I consider this the best method of artificial increase ever given to the public I shall surely put it to a test for myself. I am writing you this to know if any one has tried the plan of giving the queenless colony a ripe queen-cell or a caged virgin at the time it is set on top of the excluder, allowing her to become fertilized through an auger-hole in the back of the old hive before moving the same to a new location. What do you think of this plan where one has no laying queens to give them? If I can work this plan successfully it will be worth \$100 to me.

W. H. CRAWFORD.

Roswell, N. M., April 22.

[The plan of having a queen fertilized from an upper story above perforated zinc was originally described in Doolittle's book, "Scientific Queen-rearing." Modifications of the plan have been used more or less ever since. But to make it work, a honey-flow or light feeding is required. When used with any of the non-swarming plans it ought to work because the conditions would be favorable.—ED.]

THE MATTER OF SCENT, AND ITS RELATION TO INTRODUCING QUEENS.

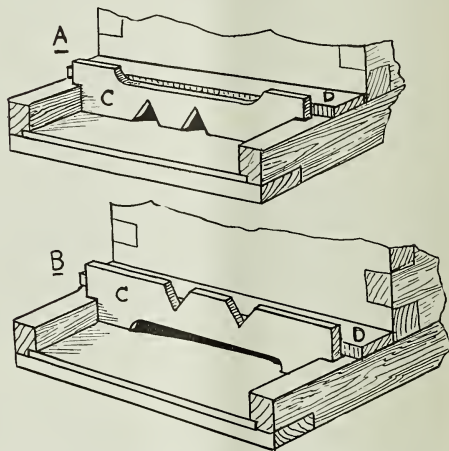
Ernest, tell A. C. Miller to buy a pair of cheap sheepskin gloves that smell strong of the tanning, put them right on his hands new, and go to clipping queens' wings and see how many queens he will have that the bees will not ball. I tried it once, but soon laid the gloves away, then washed the scent all off my hands, and had no more trouble. I presume Mr. Miller would say the queens were scared. Why should they be any more scared than with my bare fingers?

H. S. WHEELER.

Mt. Pleasant, Mich., Feb. 22.

AN ADJUSTABLE ENTRANCE-BOARD.

I am sending you a small model, a short section of front end of my bottom-board. Since I wrote you I have made some changes, and I think it is now about as good as I can get it. The rails and bottom-board extend far enough for an alighting-board. The front cleat will strengthen the bottom-board and hold it straight in front. The entrance-board can be made of wood, or galvanized iron, and can be used in three different ways—one or two bee-slots, $\frac{3}{8}$ inch, or the entrance can be closed by having tin ears to close the slots; and when it is wanted you can change to the full entrance, one inch or



A shows contracted entrance; B. open entrance; C, the adjustable entrance-guard; D, cleat.

$1\frac{1}{4}$ inches, by removing the entrance-board. The tin ears can be put on if the feature is worth it.

The entrance-cleat is used for the entrance-board to rest against, and also to hold the hive just far enough to give the finger room to adjust the board.

JAMES M. BROWN.

Pell City, Ala., April 6.

[It is an advantage, I am sure, to have an entrance that can be easily and quickly contracted without resorting to the use of pieces of lath, broken twigs, paper, or grass. Our single-walled hives now provide for three sizes of entrances, any one of which can be adjusted in ten seconds. The largest entrance is $1\frac{1}{4}$ deep by the full width of the hive; the medium size is $\frac{7}{8}$ deep by the full width; the smallest size is $\frac{1}{4}$ by 8 inches. The large size is used when hiving swarms or in the case of powerful colonies during hot weather. The medium size is for a general honey-flow when the colony is working busily in the fields. The smallest is used immediately following the honey-flow when bees will be inclined to rob, and at all times of the year when the weather is cool or cold. Your arrangement provides for four different sizes, and we see no rea-

son why it should not give the same result as that secured by our arrangement.—ED.]

ALL IN THE TASTE; IMPORTANCE OF SELLING
HONEY IN A LOCALITY WHERE THE
FLAVOR IS KNOWN.

I should like to give a little experience of mine that corroborates the remarks of Mr. R. A. Burnett, page 491, in regard to giving to each person the kind of honey he has been accustomed to. Last fall I shipped 25 cases of honey to Alliance, in the north-western part of our State. They had been accustomed to Colorado honey; and those persons who had known no other, or those who had acquired the taste for Colorado honey, thought my honey very poor. One poor man declared he could not eat it, and said it made his little girl sick. On the other hand, those who had known white-clover honey in the East were delighted with it, one man exclaiming, "That's honey! If I could always get such honey as that I would not mind buying honey." And another one said it made him "think of home." So, I think too that there is much in the kind of honey the particular individual has been accustomed to. One who has always been used to the white alfalfa honey would naturally think the thicker, darker honey adulterated, while those who have been accustomed to the white-clover honey would find the alfalfa insipid, and lacking the qualities that he naturally associates with good honey.

G. A. WETHERELL.

Dorchester, Neb., May 11, 1905.

SUPERSEDURE IN COLD WEATHER.

In GLEANINGS, page 318, March 15, was an article which I sent you about "Supersedure in January." One warm day I looked in the colony in which I found the dead virgins, and found two cells that had not hatched because of the contraction of the cluster when another cold spell came on. There were also three cells that had hatched. The old queen was on the bottom-board at the back part of the hive. The young queen that was victorious was there and alive, though dark, showing, I think, she was reared in cold weather. There were no eggs in the hive, which proved that she was not mated. I found one or two drones in the hive also. The colony is of fair size, and in a ten-frame hive. I have taken particular pains to watch this colony on warm still days to see when the young queen comes out. I am certain that this colony superseded its queen in January.

H. A. ROSS.

Evansville, Ind., March 22.

[It is not possible, as I explained on page 318, March 15, that your queen was superseded in midwinter. All the conditions go to show that she died, or was superseded in the regular way in the fall, but not so late but there were eggs or young larvæ from which the bees could rear queens. It is not an uncommon thing for virgins to be hatched out so late in the fall that they live until

the following spring; but if they go on that long without fertilization they will either disappear or turn out to be drone-layers in the spring.—ED.]

HONEY ACTUALLY TOO THICK TO EXTRACT;
CONDITIONS DIFFERENT FROM THOSE
IN AMERICA.

We have at times and at certain seasons much trouble in extracting honey. It seems too thick and sticky, and won't come away from the combs without breaking them. I think our principal honey-producing plant (titree) is the cause of this. The honey from it has a splendid flavor, but seems too thick, as I have already said. I thought you might suggest some plan of steaming the combs and honey before extracting, or something of the kind to do away with this great trouble. We don't seem to be able to remedy it here. I thought some of the honey-producing plants in your locality might have the same disadvantage, and that, perhaps, some of your folks have had experience with the same.

R. S. DOUGLAS.

Fairview, New Zealand, Feb. 16.

[So far as I know, there is no honey so thick in this country but that it can be extracted in a warm room—that is, in a temperature of 70 or 80 degrees; but the celebrated heather honey of England and Scotland is said to be so thick that it can not be extracted. It is, therefore, left in the comb or sold in bulk. In your case I would advise putting up the honey the same as the beekeepers in Texas do, and sell it as "bulk" or "chunk" honey in tin pails, or even in square tin cans with large screw caps. This is the common mode of disposing of a great deal of honey in Texas, and there is no reason you could not pursue the same plan to advantage. Indeed, I do not know what else you can do unless you run exclusively for comb honey in sections.—ED.]

DEEP ENTRANCES FOR CELLAR WINTERING.

Please tell me the objections to a $\frac{3}{4}$ -inch entrance for both winter and summer.

I placed my bees out the 25th of March for a fly—the first since Oct. 20, and all came through in very good condition. Two out of sixty died of starvation, with entrances $\frac{3}{4}$ -inch deep, and sealed covers. I intend wintering in the cellar with deep space below the frames, for I think it very important.

Bobcaygeon, Ont.

J. D. OLVER.

[The $\frac{3}{4}$ entrance would be too large in the spring and fall, and altogether too large if the colony wintered outdoors. The large opening should be used only during the hottest part of the summer when honey is coming in freely, and the bees need plenty of flight room, or we may say elbow room, to go in and out of the hive. Nor is this all. The wide doorway makes it easier to keep the hive cool, thus permitting all the bees to be doing some useful work both in and out of the hive, when with a small entrance half of them might be loafing. But when

the robbing season comes on, the full-size opening would be too large, and should be reduced to accommodate the then present needs of the colony. One of the things we have learned in these latter days is the value of an expansible and contractible entrance—contractible during cool or cold weather, and expansible in the hot part of the year when honey is coming in.—Ed.]

BEES WINTERING IN DANZENBAKER HIVES.

Do you hear good reports of bees wintering outdoors on Danzenbaker brood-frames? Have the losses been heavier as compared with other hives with the deeper frame?

J. ARTHUR SMITH.

Hartford, Conn., April 10.

[We have had uniformly good reports of wintering in Danzenbaker hives. This hive is, to a great extent, double-walled. The closed ends of the frames and the end of the hive make two walls. The division-board on the other side makes another wall. If the exposed side, or the single-walled side, faces the south, the cold sides are reasonably well protected.—Ed.]

WINTERING BEES IN A DRY CAVE WITHOUT VENTILATION.

I went to great expense to put in a sub-earth ventilator. I tried it for three years, and found that the bees that were the furthest from the ventilator wintered the best. I closed the ventilator, and made every thing as tight as I could around the cave with double doors, and papered, and my bees wintered all right. The thermometer stands at about 40 from December to April. The cave is dry. Give me a cave that is dry and nearly air-tight for wintering bees.

ISAAC BARBY.

Radney, Ia., March 21.

[Some years ago sub-earth ventilators were discussed a good deal in the bee journals, and many of them were put in at great expense; but nearly every one of them was discarded sooner or later because they were either a positive detriment or no particular advantage. In the light of our past experience I am inclined to think the underground air-tubes of this kind brought in dampness, and dampness is always bad. Good clear dry air from above ground is, under some conditions, decidedly beneficial, provided that not too much of it is admitted at one time, thus reducing or increasing the temperature below or above 40. Where the temperature can be controlled absolutely at a uniform point, as in your case, ventilation might do more harm than good, for the reason that it would modify the temperature, making it too high or too low at times. For the other conditions when ventilation is beneficial, see GLEANINGS for March 15, page 292.—Ed.]

COMBS VS. STARTERS FOR SIBBALD NON-SWARMING PLAN.

Can we use a full hive of empty combs in place of starters in the brood-frames with

the Sibbald non-swarming plan? or will the bees store the honey in the empty brood-combs in place of the super?

Bridgeport, Ct., April 10. F. ORELUP.

[My impression is that the empty combs would not be as good as the empty frames of starters, for the very reason you suggest.—Ed.]

MAPLE SUGAR AS FOOD FOR BEES.

Maple sugar killed a strong colony of bees for me. I think it was not pure. Please give me your opinion about it.

Findlay, O., Mar. 11. M. H. DUYER.

[The maple sugar you refer to was probably pure. It could hardly be otherwise with the stringent pure-food laws in this State; but even if pure it may have been the cause of dysentery, as there is no food for winter use that is quite the equal of granulated-sugar syrup when it is fed thin, and well-ripened in the comb. But dysentery is not always caused by the food. Extreme cold or extreme exposure, rather, is liable to bring on dysentery with any food, however good, before spring.—Ed.]

DISEASED BEES; BEE-BREAD; CLIPPING QUEENS.

I find in my apiary this season a very large number of bees running about on the grass and walks, apparently unable to fly; their wings seem fairly good, and the bees far from being worn out or feeble from old age. They are beautiful Italians, bred from your queens. The hotter the day the more bees seem to be running about. Can you tell what is the trouble?

Kindly tell me by which bees the bee-bread is consumed, and at what stage it is necessary.

Is "bee-bread" the proper term to use for pollen when prepared and placed in the cells ready for use?

Do you think the clipping of queens is injurious, or tends to shorten life or cause the bees to requeen, as many queens this season have been superseded?

H. PARRETT.

Canterbury, New Zealand, Feb. 10.

[Very often one will find a good many bees on hot days apparently perfect in every way, but crawling around in the grass and on the sidewalks aimlessly, repeatedly making the attempt to fly, but without success. This phenomenon has been noticed hundreds of times, but so far no one has been able to tell whether it is due to one cause or several of them. In the spraying season thousands of bees are liable to be found crawling around in the grass as the result, probably, of poison. At other times there will be the same hurry-scurrying about of bees trying to fly, but failing, and this may be due to some germinal disease.

Bee-bread is the common name for pollen stored in the cells, mixed with a little honey. The designation is very apt.

So far as any one can see, the clipping of

queens does not in any way prove to be any injury to the queen. Dr. E. F. Phillips, one of the entomologists at the University of Pennsylvania, says the wing structure is such that the clipping can cause neither pain nor injury to the insect. If there is an unusual amount of supersedure it will be due to some cause other than clipping.—ED.]

REARING QUEEN-CELLS IN BROOD-NEST BY
MEANS OF PERFORATED ZINC DIVISION-
BOARDS; HOW LONG CAN QUEENS
BE KEPT IN SWARTHMORE
MATING-BOXES?

Is not the division-board used for the divided brood-chamber, described on page 11 of Modern Queen-rearing, made of queen-excluding zinc? If so, why be so particular to have them fit bee-tight all round? Will not uncapping honey stimulate the bees as well as giving sugar syrup?

How long can queens be kept in the Swarthmore fertilizing-cages without injuring them for egg-laying? E. D. HOWELL.
New Hampton, N. Y., April 25.

[The division-board referred to is made of perforated zinc. It is true that the author says, "Make two tight-fitting zinc division-boards bound with wood." As he was talking about perforated zinc on the previous page, he probably did not think it necessary to describe the kind of zinc again. Although bees are supposed to pass freely back and forth through the metal he was particular to have it reach from cover to bottom-board, and from end to end of hive tight enough to prevent bees from passing around at any point. If the bees could get around, there would be danger that the queen might also. If the queen should get into the compartment where the cells were building, she would soon make short work of them.]

Laying queens can be kept in Swarthmore boxes a month or six weeks. Usually it is better to take them out as soon as they are laying, send them away to fill orders, or give them to larger colonies where they will have a little more scope for egg-laying. We have practiced keeping laying queens in baby nuclei when we had no other place to put them, or until such time as we received an order for one or more.—ED.]

DO QUEENS GET DISSATISFIED IN A BABY
NUCLEUS?

This year I have been experimenting with baby nuclei. Do you think the queens get dissatisfied in such small hives, as they so often desert? I had a big nucleus and a small one on the same stand. The large one was queenless, and the baby had a virgin queen in it. Some days afterward I examined the baby and the queen had gone; and when I examined the big nucleus I found her in it laying for all she was worth.

Another time I prepared a hive for queen-rearing. I put in strips, and two days afterward I found 27 cells commenced. Seven days after that I looked again and found all

the cells destroyed. I then looked through the combs, and, to my surprise, I found eggs and hatched brood. Thus a laying queen had taken charge of the hive. At the same time, one queen deserted a baby nucleus which I had placed about three chains from the apiary. Now, what I want to know is, how can you account for the hive being requeneed? The queen must have come from the baby nucleus. If so, how did it pick out the only queenless hive in the apiary? The old queen I killed.

Cambridge, N. Y. R. J. MELVILLE.

[In the case of the first instance I should say that the virgin, by mistake, went into the large box of bees rather than the small one. In our experience, virgins are not unerring as to their old entrances, and very often make queer mistakes. It is not an uncommon thing to find one balled in a hive with a laying queen, simply because she made a mistake and went into the wrong hive. As to the second instance, it is possible that the virgin was not entirely satisfied with her old quarters, being cramped, and hence wandered over to some other hive; but, more likely, she made a mistake; or it is possible there is a bee language by which virgin queens recognize by the behavior of the bees on the outside that such and such a hive is queenless.—ED.]

THE SIBBALD SYSTEM USED WITH SUCCESS IN
CONTROLLING SWARMING.

I have received GLEANINGS for April 1, and was pleased to read your editorial, page 358, speaking of a new plan to prevent swarming. I practiced that plan successfully last season, with one or two frames of brood in hive No. 2. One removing of No. 1 prevents swarming after the appearance of queen-cells, except one hive that had capped queen-cells. That hive issued one swarm; 16 out of 17 were a perfect success.

M. BROWN.

North Little Rock, Ark., April 6.

FOUL BROOD NOT SO BAD IN CUBA.

On page 484 Mr. Leslie Burr says "foul brood is one of the things that thrive in Cuba. It exists from one end of the island to another, etc." I take exception to this statement, for Camaguey Province is a pretty big piece of Cuba, and we have no foul brood here, nor have had any. Why will your correspondents who come to Cuba and run around a few miles on the outskirts of Havana talk of the island as if they were familiar with every nook?

ROBT. L. LUACES.

Camaguey, Cuba, May 10.

DIBBERN'S QUEEN-TRAP FURTHER IMPROVED.

We mail you one of our latest improved queen-traps. We think you will find this a decided improvement over the one we first sent you. We will try to point out where we claim it an improvement over your Alley trap, though we find the model you recently

sent is a decided improvement over the one sent us some years ago by Mr. Alley. To commence at the bottom, we use a $\frac{7}{8}$ strip instead of full width of trap as in yours, leaving only a $\frac{1}{2}$ -inch vertical opening to the hive, having a $\frac{3}{8} \times 12$ entrance. Also if the Alley is set on a sloping alighting-board like your Dovetailed hive, the top of the trap is

only making them look neat, but enabling one to see much better.

Milan, Ill., Feb. 23.

[Your trap is an improvement in some respects, and in others I think it is open to some serious objections, the principal one being that it will not stand rough handling in the mails, for a large percentage of the traps we sell are transmitted to our customers in Uncle Sam's bags. The removal of the horizontal strip of wood or brace at the upper corner in front weakens the trap materially. In the mail-bags, or even in handling in the yard, or piling up for storage in the fall or winter, the perforated metal, where it bends at right angles at the top in front, would be almost sure to be jammed in, for there is nothing to support it. Then the small strip of wood in the rear, with a groove to allow the perforated zinc to slide, to move up and down, is very weak. It would be easily broken, and, moreover, there would be great danger that the slide would slip out of its groove. The basic principles of your trap could still be preserved in a modified construction, and yet give an article that would be fully as strong as the Root-Alley trap. I question, however, the advisability of increasing the space in the upper story of the trap over that in the Root model. We have used them every season with the reduced space, and never found any necessity for increasing it.—Ed.]

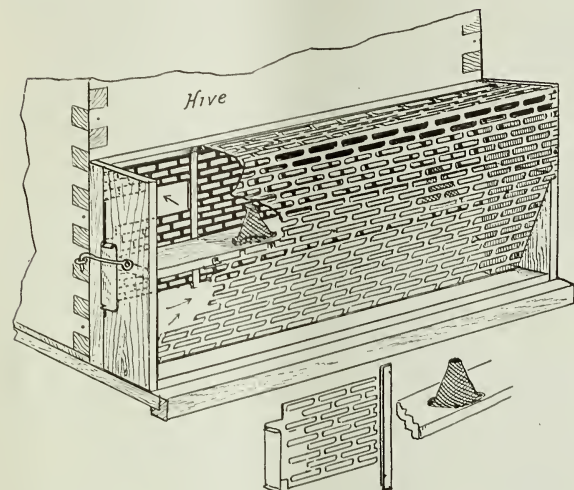
WOULD NOT A DORMANT STATE OF BEES IN WINTER ACCOUNT FOR FREQUENT LARGE QUANTITIES OF HONEY LEFT IN THE SPRING?

If the bees consume as much honey during such winters as the one just past, which Prof. Henry, of the Weather Bureau, says "has gone into history as the worst on record," how is it that the bees have to eat regularly as we do to survive? My bees came through all right, and brought their honey through too, or so much of it that I am afraid they will not have empty combs for brood. Now, then, I wish to know how bees wintered on their summer stands can leave the cluster without freezing to death, and may not this dormant state, so long continued, account for so much honey being present at the close of winter?

G. HOUCHINS.

Huntington, W. Va., March 21.

[Generally speaking, bees with proper protection, indoors or outdoors, will consume less stores than under the other conditions where they have to eat to keep warm, resulting in overcharging their intestines, bringing on disease. But sometimes, even with proper protection, the bees will not be in that dormant state you speak of, and will



$\frac{1}{2}$ inch from the hive. Moth eggs also collect under the wide bottom. In our trap you will notice the holes through the center strip are very near the front zinc, with no square edge between, enabling the queen to go into the trap at once—a new feature. In the Alley, with $\frac{1}{2}$ inch between zinc and hole, with a square edge, the queen will often be hours in trying to get through the upper row of perforations before finding even your large cones. The trap part as you have it is too shallow, and that wide upper strip makes it difficult to see the queen, if many drones are present. The little hole you have for releasing the queen is entirely too small, and in the wrong place. When the swarm is entering the new hive, the queen will be found trying to get through the lower rows of perforations, and would run right over such a small opening, though the nail were out, just as she often does over the tops of the cones. In ours the slide door in the rear zinc is a *new feature*, and is about perfection. You will see in our trap the rear zinc extends 1 inch below the middle strip. This is to prevent the bees when swarming from boiling over, and to get the queens and drones behind the trap—a valuable new feature.

Our trap has two wire hooks and screw-eyes to fasten it firmly to hive—a new feature. If no fastening is used somehow, by wind or bees, the trap is liable to be pushed away from the hive, with possible loss of swarms. In our trap the ventilation is much better than in the Alley, and it is much easier to see the queen when trapped.

Lastly, our traps are painted white, not

consume largely of the stores until there is none within reach. If there is continued cold, such bees will die by reason of starvation and not because they freeze to death, if I am correct.

Bees wintered in their summer stands can not leave their cluster during a severe cold spell without becoming chilled. If it does not warm up in a few days they will die. If you look over outdoor-wintered colonies in the spring, you will find bees here and there dead that have strayed away from the cluster in search of stores. They became chilled, and in that state the little vitality they have is suspended, and death ensues. I do not know, but I have a theory that a well-fed bee will stand chilling much longer than one that has not had a good square meal for some time.—ED.]



Owe no man any thing, but to love one another.—ROMANS 13 : 8.

If it be possible, as much as lieth in you, live peaceably with all men.—ROMANS 12 : 18.

One very important matter in any home is to preserve friendly relations with your neighbors; and inasmuch as most quarrels come from differences in deal, Mrs. Root and I have all our lives practiced or tried to practice paying cash down, so that every deal may be finished up as far as possible as it comes up day by day. When we were first married I think, however, we tried running accounts at the groceries and meat-markets, but at this time there was great need of the strictest economy; and on this account we very soon decided we could make our scant earnings go further by paying cash than by running up an account. And by the way, friends, I have got into such a habit of asking the price of every thing I purchase that I presume it will follow me all my life. No doubt I am laughed at; but I can stand being laughed at if by so doing I can set a good example before the younger ones. For instance, I never stop at a hotel without asking the price of lodging and breakfast. Oftentimes I see people with comparatively small means pay more than I do for the same accommodation just because they did not make a price beforehand. Many hotels have different prices for different accommodations. In the city a clerk will say a room will be 75 cents on the first floor above. But you can have the same kind of room exactly for 50 cents, by going up another stairway. Now, I do not know how you feel about it, but, even if I am 65, I can afford to go upstairs and down for 25 cents. I have been told it looks small, and as if I were hard up, to ask about prices. I can't help it. The saddest part of it is, that some hotels will give you the *very same room*, no matter whether you pay 50 or 75 cents.

But we are not going to talk about hotels just now. Of course, there are good Christian men in the hotel business, as well as those who have little or no conscience.

What I wanted to speak of particularly in this talk is purchasing the every-day commodities of life—food, clothing, etc. Mrs. Root and I still pay cash down for milk, butter, eggs, groceries, meat, fish, etc. The younger ones say it is a lot of bother to make change so many times. That is true; but Mrs. Root has three little dishes—one to hold pennies, one for nickels, another contains dimes. Quarters and half-dollars she keeps in her pocketbook. When the boy brings the meat, and tells her the amount, she can take up the right change almost in an instant, and the transaction is done with.

On page 510 I spoke about the advent of the telephone, and its effects on our relations with our neighbors, especially those who supply our daily needs. It surely is a wonderful thing, and we ought to thank God oftener than we do, that the housewife can stand right at her kitchen table and ask the dealer what he has to-day, what the price is, and when he will be making a trip in her neighborhood. My friend, if you do not do that last thing, let me beg of you, out of a neighborly and Christian spirit toward your grocer, that you avoid asking him to make a long trip to bring some needful article. Well, the younger members of the family say you not only save time by paying bills monthly or quarterly, but you avoid *having to pay for things twice*. This last matter I have put in italics is to be the main point of my talk to-day; but before we get to that I wish to discuss this matter of ordering things sent down without inquiring the price and putting down the money.

My friends, I have stood on both sides of the counter. In fact, I have been on one side or the other pretty much all my life, and I expect to be there yet as one who either sells or buys; and I discovered long ago (or at least I think I did), that you make a big saving by not only carefully inquiring the price, but by carefully examining the article before you put down the money. May be you will say I ought to be ashamed of myself when I acknowledge that, if you are buying something of *me*, it will be better for you to ask the price than simply to order it and say nothing about the price. I know there are lots of Christian men in business, and there are men who will look out for the interests of an absent customer just as well as or may be better than they would if he were present during the deal. But for all that, when you send an order anywhere for something you want, and say nothing about the price, you will, *as a rule*, be charged more than if you describe the article and ask for the best figures before purchasing.

The present age is somewhat to blame for this state of affairs. We hear about millionaires who throw down a bill or a coin and say, "No matter about the change." In such a case, of course, you are at liberty to take 50

cents for something that has a market value of only 25 cents. But I do not like that way of doing business. It is demoralizing. The newsboys sell papers for a cent or two cents when they can not do any better; but there is a tendency to encourage them in asking a nickel where they judge from the looks of their customer that he would not mind it. As a consequence, lots of people pay a nickel who really can not afford it. Besides, they dislike to say any thing about so small a matter as two or three cents. This is all wrong.

Now, do not stop reading this paper because you think I am going to keep on talking about saving pennies. Let us take a big jump. Yesterday's daily announced that Secretary Taft declared he would purchase vessels for carrying freight to the Panama canal of foreign countries unless our American ship-builders stopped putting their prices away up for every thing wanted for the Panama canal. At this there was a big jangle, and a big protest from the American people. They thought it an outrage if the people of the United States should not have the privilege of furnishing all the material for the Panama canal. "All right," replied our square-footed old friend. "You fix up the price to Uncle Sam reasonably near what you would to anybody else, and we will trade at home. If you do not, we will buy where we can buy the cheapest."

I have a little plant growing in my greenhouse, named "Honesty." It is an old-fashioned plant that has been recently brought to the front. I told the children in our Sunday-school, as I held up one of the plants, it was "old-fashioned Honesty." Now, I fear there are some people who begin to think other kinds of honesty are old-fashioned; and that, in order to get "into the swim," and keep up with the times, we must follow the trusts, Standard Oil, big railroads, etc., and "charge all the traffic will bear." God forbid that this fashion should go any further; and our good President is bound that God (through our great rulers) *shall* forbid such a fashion; and in order to help forbid this kind of dishonesty it behooves each and every one of us—yes, right in our homes, and, if you choose, right at the kitchen table—to insist on fairness and *old-fashioned* honesty. Explain to the dealer exactly what you want, ask him what the price will be, and when the boy brings it down insist to a reasonable extent on having goods according to the agreement. Please do not misunderstand me, and think that I mean that people who are well-to-do should make a row about a few cents or a nickel. It is not the money that is involved. It is, rather, a matter of education. Let us teach the boys who bring the meat and groceries, honesty and fairness; and let us set the example by always preserving a Christian spirit.

One reason why Mrs. Root and I have adhered to the cash-down principle all our lives is to avoid being asked to pay for things twice. But we have not succeeded

after all. Every little while a bill is brought in for something that they claim was not paid for. If it is a small amount we have been in the habit of paying it. Investigation shows sometimes that some of the family made the purchase in question, and either forgot or did not understand our fashion of spot cash. Sometimes after a troublesome investigation we find the stuff was sent to some other Root than A. I. Root. Once the boy who delivered the stuff kept the money and reported that it was not paid. He confessed it, however, when sufficient pressure was brought to bear.

The worst trouble in these transactions was that the dealer waited a month or two before informing us. One person, a good friend of mine, waited for two years before he told me he thought we must have forgotten a bill I was owing. He excused himself by saying that he had let it run because he felt a little backward about dunning people who were usually so prompt.

So many things like that come up that I finally put a notice in our family paper, saying that, if I owed anybody, I wanted the account sent in at once, for it was my wish to pay spot cash everywhere and to everybody.

Now, you may think it a little singular, but we have almost a quarrel in trying to avoid running accounts. Let me mention one thing right here with emphasis. It is a very bad plan to pay cash part of the time, and have the account charged part of the time. It is bad for the dealer, and bad for you. You must do either one or the other. For instance, The A. I. Root Co. has a running account at a certain hardware store. This is so the messenger boy who makes daily trips for the mail can bring things wanted for the factory. Well, I told them when I wanted things for myself individually I would pay down so as to save them the labor of book-keeping. Well, sometimes I would pay down and sometimes I did not. I was obliged to own up once or twice that I went off with stuff and forgot to say any thing about pay.

One day I was wondering if this state of affairs—this being obliged to pay for things twice—belonged particularly to Medina. So when I was visiting at different places I inquired of relatives if they had any such trouble. A relative in Xenia replied, "No end of trouble. A man in our town brought in a bill of 15 or 20 dollars, over two years old. He said I had never paid it. It was so long ago I had lost my receipt. We had a big jangle about it, and were going to have a lawsuit. Just then I blundered on to some of my old books and papers, found the account-book, and made him acknowledge I paid him the money just as I stated it."

And so I hear of similar cases. A person told me he had the same fight we did to pay spot cash so as not to be asked to pay same bill twice. In arguing the matter with a merchant he urged that a man who paid spot cash ought to have little *better* prices, if any thing, than the one who obliges the

merchant to keep books and lose more or less bad accounts, etc. He said this merchant replied that he did not want the trade of a man who always pays cash down for every thing he buys. I suppose what the merchant meant was that he would prefer a customer who had a book account, and paid that account without grumbling, to one who usually paid spot cash and then demurred when asked to pay for something he thought he did not have.*

In discussing this matter I have heard people claim that the dealers in *their* town have actually made a *business* of trying to make people believe they had not paid a bill so as to get payment a second time. This is not only an unchristianlike spirit but I think it is unreasonable. There *may* be men in business who would want you to pay twice, but I think they are *very* rare. In all transactions of this kind we need to be very careful to cultivate the beautiful spirit suggested in that passage in the 13th chapter of First Corinthians—"Is not easily provoked; thinketh no evil."

I told you I had stood on both sides of the counter for many years of my life. Well, I am sure from what experience I have had that the men who stand on both sides *try* to do a fair and honest business. Perhaps this may refer more especially to small dealers and merchants. When we get among the trusts and millionaires, I am really afraid that strict honesty is getting to be somewhat old-fashioned. Now, the younger members of our family suggest a remedy; and although I do not just like this remedy I am afraid that, with present modern improvements, it is almost the only one. It is simply to put your money in the bank and have a check-book, and pay your bills by check. This might do in a town where there is a bank; but it would be quite inconvenient in small towns or in the country. Under the circumstances there seems to be no other way than to keep cash accounts. Put down in a book with date, in some way so you can read it, all the money that comes into the home, and all that goes out; then you have proof that will stand law, that you have paid certain bills. You may say that such a course would be entirely out of question with the cares and duties that press you, especially since it is so difficult to get com-

petent help either on the farm or in the home. But, my friend, you will probably make big wages by keeping some such cash account. I wish to illustrate how much such a cash account would save by some of my experiences.

When I made one of my trips to Florida I bought some supplies of a dealer. Months afterward I was asked to pay for them. I declared they were paid for, but I had nothing to show for it. The dealer and I were good friends, and we talked the matter over; but, although I felt sure I had paid the bill, I could not prove it. After I gave up and decided to pay it again I happened to think that I sent the money up by the mail-boy. When called up he said he remembered it perfectly, and he was even able to fix the date. The dealer, who kept a cash account, turned to his books, and found that on that day they were the amount of the bill (\$5.00) ahead, and they had never succeeded in telling where it came from.

At another time I took an outfit down home to see if Mrs. Root approved of it. After I decided to keep it she kept telling me I must go up and pay the bill. Now, she thinks that, as I kept neglecting it, she took the money to the store-keeper and paid it herself. But they felt equally sure they never got it. As the bill was not presented till several months after I bought the goods she was obliged to confess she could not tell to whom she gave the money; and she could not remember, either, any thing about a receipt, so we paid for the goods, possibly a second time. When I asked the proprietor to examine their books as the other dealer did he said they did not keep any cash account that would enable them to tell whether they had so much money ahead about that time or not. Surely, every *merchant* should keep some sort of cash account so as to help trace transactions (of about \$10) like this.

Now, do not imagine that I am insisting that I paid the money twice. I have every confidence in my good friend who keeps the store, and I have never thought of feeling any less confidence in him on this account.

A friend of mine thinks she has paid a doctor's bill of thirty or forty dollars a second time. She feels sure she had a receipt in full, and that it lay around the house until she thought it was of no use, and destroyed it with other papers. The physician, unfortunately, let the account run until it was several years old. He then brought it in, in connection with a more recent bill. He keeps a book of receipts, and each receipt has a stub. When a receipt is given to a patient the stub remains in the book. His book does not show any stub of such a receipt as she claims to have had around the house until it was thrown in the waste paper with other receipts. Under the circumstances the bill was paid—paid over again, as she thinks; paid for the first time, as the doctor thinks.

I have mentioned these home transactions at length to show how much a brief cash account may be worth. I said in each case

* There is a hardware store in Traverse City where they have two prices for every thing—one for the spot-cash customer, and another where the account goes on the books. This seems only fair and honest; but I am told it does not work. When a merchant really opens a cash store he must explain to everybody and make *no* exceptions. Such a grocery was once started in our town. One of our best-known and wealthiest citizens went for some butter when dinner was already waiting. But he had changed his clothes, and his money was in his other suit. The cash-store man said, "Mr. B., I hope you will excuse me if I ask you to leave the butter on the counter while you go back for the money." He explained, as fully and as pleasantly as he could, that he was obliged to make *no* exceptions. But the butter *remained* on the counter, and it broke up a friendship of years' standing, not only between the two men, but between the two families. Who was right and who was wrong in this transaction? Good Christian people will be found on both sides, and so, perhaps, the question can never be settled.

where I was concerned that I would rather lose it myself than to have my neighbor lose it, if one or the other must lose it; in one case I believe each stood half the amount in question. Another thing, after such a transaction has been settled and dropped, do not allow Satan to put it in your mind again. Forgive and forget—that is, if there is any thing to forget. Give your neighbor credit for being as anxious to leave this world with a clear conscience as yourself; and do not, for Heaven's sake, allow a few cents (or even a few dollars) to prejudice you or spoil your faith in humanity or make you unhappy. When we come to die, what difference will it make, any way, whether we have a few dollars more or less? Let us strive, in the language of our text, to "owe no man any thing, but to love one another," and, so far as it lies within us, to "live peaceably with all men."

THAT WONDERFUL PRAYER, AND THE COMMENTS BY THE POET BEE-KEEPER.

Dear Mr. Root:—I am a reader of your lay sermons in GLEANINGS. I wonder if you will care to see my comments on the Lord's Prayer. At any rate, I take the liberty to enclose a copy. Assuring you of my admiration for the work you are trying to do, and praying that you may be spared long to continue it, I am Very sincerely,
Forest City, Ia. EUGENE SECOR.

OUR FATHER—Oh the cheering thought
That God our maker may be sought
As one who feels our needs—
That, as a child in confidence,
We may approach Omnipotence—
He, like a father, heeds.

WHO ART IN HEAVEN—above our strifes,
Our petty cares, the rounds of life's
Increasing doubts and fears;
In calmness and in kindness he
Looks down in love on you and me
While riding heavenly spheres.

From striving, faithless, godless marts,
Shall men with unclean lips and hearts
Say HALLOWED BE THY NAME?
May lips be pure that speak thy praise,
And hearts respond in holy phrase,
For angels voice the same?

THY KINGDOM COME—if I so pray,
Do I assist to bring that day—
The day when he shall reign?
And am I ready if my prayer
Be granted? Would I not forbear
And cling to worldly gain?

THY WILL BE DONE Lord, teach us how
To say this prayer, and meekly bow,
Although the heart be riven.
May we be granted needful aid
Until thy will shall be obeyed
ON EARTH AS 'TIS IN HEAVEN.

GIVE US THIS DAY OUR DAILY BREAD—
From our own toil may we be fed,
Not others' food we ask;
But when we do our very best
With cheerfulness, may we be blest,
Blest in our daily task.

FORGIVE OUR DEBTS—they're many, Lord,
AS WE FORGIVE—ah! that is hard,
OUR DEBTORS are so slack!
The grace of mercy, Lord, we plead,
To feel our brothers' urgent need,
Nor every farthing take.

LEAD US—May we in faith be led
Where duty points the way, instead
Of standing, useless, still.
NOT INTO TEMPTATION—unless
To test the love our lips profess,
And the fiber of our will.

But if the tempter visit us,
And begs a temporary truce,
Amid the soul's upheaval
Be thou our strength, our sure retreat;
Let not the powers of hell defeat—
DELIVER US FROM EVIL.

Friend S., may the Lord be praised because he has put it into your heart to give us this beautiful poem on that wonderful prayer. I am sure it will give every reader of GLEANINGS a spiritual uplift, especially if he reads it several times over as I have done; and it has seemed to me that the whole world just now needs this prayer, and the comments you have made on it, more than it ever needed it before. In the great rush for gain and the struggles for office it would look as if honesty and fidelity were getting to be something old-fashioned and in danger of being snowed under out of sight. "What shall it profit a man if he shall gain the whole world and lose his own soul?"

DISREGARDING THE LAW IN RUNNING AUTOMOBILES.

It rejoices my heart to see that our excellent friends of the *Farm Journal* have suggested something in regard to running automobiles on our common roads where all good people can stand together, and be in agreement. We extract from their issue for June 1 the following:

(Model for handbill, or poster, to be put up in every neighborhood where drivers of gasoline-engines violate the law. See Farmers' Problems.)

AUTOMOBILES, WARNING!

We, the undersigned citizens of Township, County of do hereby warn all owners and drivers of automobiles that we have combined to protect our people against injury to person and property from careless and reckless driving; and that we are resolved to bring punishment to all violators of the automobile laws of the State, without fear or favor.

1. Therefore we warn you that, if you run your machine faster than the law allows;

2. If you do not obey the law in meeting and passing vehicles drawn by horses;

3. If you attempt to get away after causing a runaway, or other accident, without giving satisfaction; and,

4. If you attempt to use our roads without having a proper license, or if your license number is so obscurely placed or covered with dust that it can not plainly be seen—

We pledge ourselves to leave no stone unturned to vindicate the laws with respect to the use of our public roads by all kinds of road engines.

While we have no controversy with any automobilist who decently regards the safety of our citizens and obeys the laws for their protection, the reckless unprincipled driver will find that, when he enters our borders, he is in a hostile country, that he is our enemy, and will receive justice but no favors; he will be arrested and punished, as he deserves to be.

We invite the co-operation of all automobilists who themselves obey the law; and

We request all citizens of the township, both men and women, to help us in this work by having any or all persons seen or known to violate any of the provisions of the law arrested and brought before the nearest magistrate. We advise the use of the telephone, when necessary, to warn the neighbors ahead.

Signed by:

We call particular attention to the following sentence: "We have no controversy with any automobilist who decently regards the safety of our citizens, and obeys the laws . . . for their protection." Perhaps I should mention that one of our friends calls my attention to what I said about running my machine over rough roads, on page 555. I am glad to tell you that I did not violate any law whatever. In Ohio, automobiles can be run at the rate of 20 miles an hour in the open country. This would be at the rate of a mile in three minutes. Owing to the roughness of the roads I did not come anywhere near that speed. The speed was remarkable only because of the condition of the roads, but no faster than a horse might travel on a good smooth road. Now let us unite in a grand effort for the *enforcement of law* against saloon-keepers, fast drivers of horses or automobiles, or anybody else who transgresses.

SECRET OF THE SUCCESS OF THE JAPANESE.

It is an open secret, friends, and very simple. The Japanese are a comparatively temperate people, while the Russians are notoriously intemperate. Now, notwithstanding this great object-lesson standing out so prominently before the whole wide world, the present Governor of Ohio is more anxious to be "fair" to the saloon-keepers, and to help them plant and hold places of iniquity in the midst of our homes, than he is to be "fair" to the temperance people and to the churches of Ohio. God forbid that he should ever be elected to serve another term!

THE JAPANESE AND TOBACCO.

Japan absolutely prohibits and prevents the smoking of tobacco by persons under twenty years of age. That is the sort of regulation much needed in the United States of America, as well as everywhere else.—*Hartford Times*.

Perhaps that is another reason why the Japs are beating the Russians. May be some of you will laugh at me; but I think the time is coming when the user of tobacco will have to take a back seat—that is, where the very best mental, moral, and physical strength are in demand.

PAYS HIS WAY ON THE RAILROADS.

We extract the following from one of our home papers, the *Medina Gazette*:

President Roosevelt has taken the stand that he can accept no free transportation from railroads, and pays his fare the same as any private citizen. His recent tour of the West was at his own expense. Good enough!

Now, then, let everybody follow the example of our good and wise President. Every member of The A. I. Root Co. pays his way when traveling, and has done so for years. If the railroad company puts an advertise-

ment in GLEANINGS it is charged up for it just the same as other people.



SWEET CLOVER AS A FORERUNNER OF OTHER VEGETATION.

The following, from the pen of Abner Wilson, of Lenawee Co., Mich., in a recent issue of the *Ohio Farmer*, suggests that sweet clover may prepare poor or barren ground for the growth of other crops, much in the same way that it sweetens the alkali soils of the far West, and prepares the land for general farming purposes:

We have sweet clover growing in abundance on our roadsides here, but I have not observed any instance where it is growing to any extent in cultivated fields. When I was a boy our roadsides were covered with many weeds. They were generally pastured down into the ground with sheep and cattle. Later, ragweed grew abundantly. Some 12 or 15 years ago sweet clover commenced to grow in patches. It was undoubtedly distributed over wide extents of territory by the wheels of vehicles and not by any hand-sowing. Now I notice this: Where the clover has grown thick for a few years it seems to die out and give place to our natural bluegrass. In other words, our friend the sweet clover (*mellilotus*) has performed its mission—that of growing upon and enriching an otherwise barren soil, leaving its legacy, the nitrogen nodules, which are said to be the same as on alfalfa. Who would not rather drive along a road with the perfume of the sweet clover coming to him from both sides than the hay-fever-promoting ragweed pollen?

ALFALFA AND ITS MERITS "BOILED DOWN."

Although the following is taken from an advertising leaflet of a Western grower of alfalfa, it contains a great deal of valuable information. In my travels during the past season I have been very much pleased to find patches of alfalfa more or less in size, growing almost everywhere. Try a little patch in your garden if you can not do any better.

ALFALFA'S MERITS—IT IS THE BEST MORTGAGE-LIFTER EVER KNOWN.

Alfalfa is better than a bank account, for it never fails or goes into the hands of a receiver. It is weather-proof, for cold does not injure, and heat makes it grow all the better. A winter flood will not drown it and a fire will not kill it. As a borer it is equal to an artesian well; it loves water, and bores to reach it. When growing there is no stopping it. Begin cutting a twenty-acre field; when your last load of hay is handled at one end of the field it is ready to cut again at the other end. For filling a milk-can, an alfalfa-fed cow is equal to a handy pump. Cattle love it, hogs fatten upon it, and a hungry horse wants nothing else. If your land will grow alfalfa you have the drop on dry weather. Once started on your land alfalfa will stay by you like Canada thistles or a first-class mortgage, but only to make you wealthier and happier. Evidences of the profitability of alfalfa on irrigated land in the semi-arid regions multiply from year to year. Best results are obtained in Montana, Utah, Wyoming, and Idaho, by sowing in May or June.

DIRECTIONS FOR SOWING.

For dry farms, for raising seed, 6 to 8 lbs.; for hay, 8 to 10 lbs. Irrigated land, 10 to 15 lbs. Be very careful to have the land well worked and leveled. The leveler the land the closer you can cut the hay. If sown with drill, put seed in from one to two inches. If sown broadcast sow evenly over the land, then drag once with light harrow. Will grow best in gravelly or sandy land. Heavy clay or alkali land does produce good alfalfa.



A low wagon
at a low price.
Handy for
the farmer.
Will carry a
load any-
where a horse
can travel.

Low Down Wagons

soon earn their cost on any farm.

Steel Wheels

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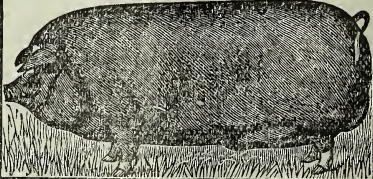
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